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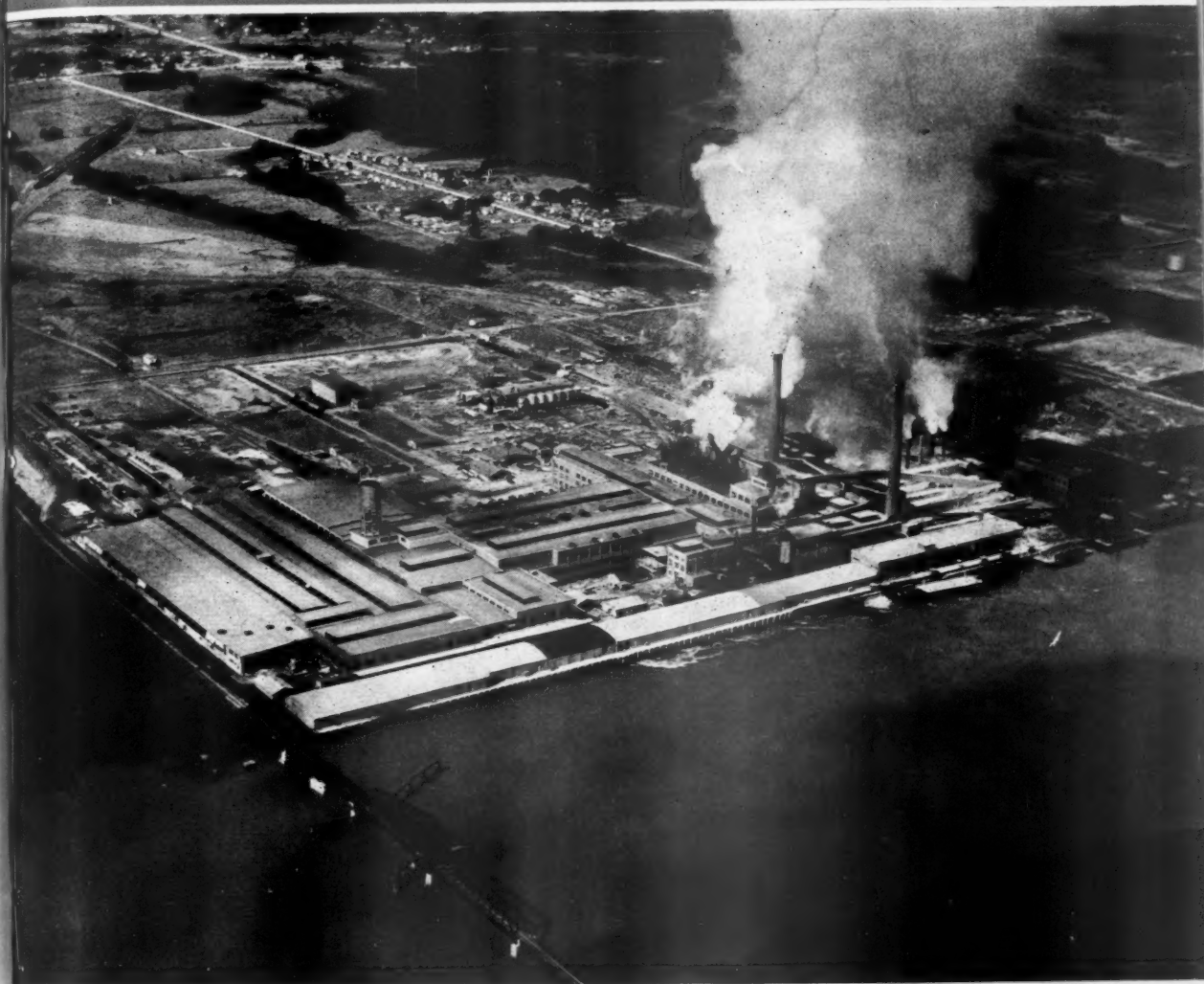
PULP & PAPER INDUSTRY

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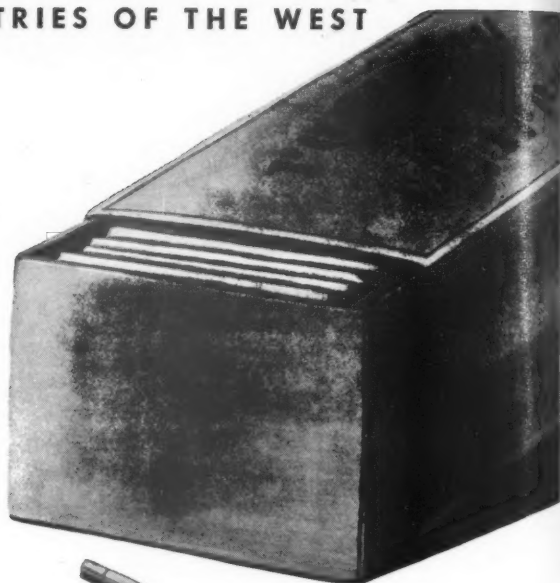
LARGEST INTEGRATED MILL IN WORLD

HERE IS NEW AIR VIEW OF
UNION BAG & PAPER CORP.
PLANT ON SAVANNAH RIVER
... HOW IT "SELLS SAFETY"
TO EMPLOYEES... SEE PAGE 18

SERVING THE INDUSTRIES OF THE WEST

PENN SALT
Chemicals

for
the BOX
and the
MATCHES



An ordinary box of kitchen matches can illustrate the wide variety of Penn Salt's services to Western industry.

The cardboard box containing the matches was produced by the paper industry of the West. And this industry is well acquainted with the consistent quality of Penn Salt products used in paper production, particularly Caustic Soda and Liquid Chlorine. The matches were produced with the aid of another Penn Salt product... Potassium Chlorate, also used in the manufacture of explosives.

The Pennsylvania Salt Manufacturing Company of Washington is producing chemicals of high quality and wide usefulness to Western industry and agriculture. We will gladly assist any pulp and paper plant with problems concerned with the use of our chemicals.



Penn Salt manufactures
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CAUSTIC SODA
for the Pulp and Paper Industry
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Bleaching Powder • Corrosion-Proof Cements •
Anhydrous and Aqua Ammonia • Acids •
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Chlorate • Sodium Arsenite • Sodium Hypo-
chlorite • Hydrogen.
*Trade-mark Reg. U. S. Pat. Off.

PENNSYLVANIA SALT
MANUFACTURING CO. OF WASHINGTON



Chemicals

TACOMA, WASHINGTON

PULP & PAPER INDUSTRY

"The Cellulose Age"

**The Management Journal
Covering North America's
Wood Pulp, Paper and
Cellulose Industries**

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NOVEMBER • 1945



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THE WEAVERS' STRIKE

IT is no secret that a lot of just "ordinary folks" are taking quite a different attitude toward some strikes today than they did, say, back in the early 30's.

Some strikes appear to be directed more against disinterested third parties or even against the general public than against the management of the particular industries involved.

For example, beginning on Oct. 17, a group of about 300 wire weavers went on strike and the action of this little band of men threatened to control the destiny of virtually the entire pulp and paper industry.

Most mills have wire supplies ahead for their machines for only a limited number of weeks. As this strike continued into November, it blocked even the shipment of manufactured wire from the wire works.

Only two important non-union plants—one in Holyoke, Mass., and the other in Neenah, Wis.—were able to carry on.

The weavers were striking for a 25% wage increase, discontinuance of arbitration and a closed shop. By no possible deductions, could these matters be of direct interest or responsibility of paper mills. Yet the paper mills pay the penalty in the end.

A fuel-power strike in Michigan threatened for a while to not only affect pulp and paper industries of that state but hit directly at the general public. It threatened a sudden stoppage of such facilities as elevators, destruction of foods in private lockers, etc.

These types of strikes, for which the public seems to pay heaviest penalty, are causing a lot of just "ordinary folks" to wonder whether it isn't time for an unbiased appraisal of the justification for this method of "bargaining" in labor disputes.

FUTURE OF COATINGS

THE "hey-day" of machine-coated paper manufacturing is past, in the sense of it being an exclusive field, with three or four manufacturers tranquilly going along without any sharp competition. Now many mills are entering the field, either on license or with their own processes.

Of prime interest to them all, are plans of mass circulation magazines.

In the printing paper line, magazines are placing their chips on a livelier appetite for reading next year. Crowell-Collier reportedly is spending \$1,000,000 for plant expansion and another million for equipment at the Springfield, Ohio, plant. McCall Publishing Co. will spend \$7,000,000 for expansion at its plant at Dayton, Ohio. Time, Inc., predicts a circulation jump of Life from 4 to 4½ millions by April, 1946, and to 5.2 million by October. "Time" expects to go from 1 to 1.3 million by March, 1946. In the rural field, "Pathfinder" is reported to be preparing for a circulation jump from a present 400,000 to 1 million by December, 1946.

Newspapers are eagerly anticipating increased advertising schedules. Many newspapers will fatten daily issues to twice wartime size.

But where are newspapers going to get their lower grade paper for such increases? Several newsprint mills are shifting to higher grade production where the field is not so highly competitive and prices are better.

Colonel McCormick, a grand sachem of newsdom, predicts the newspapers are going to have to dress up their product to compete with television . . . use more pictures and better paper. A coating mill superintendent tells us, in his opinion, the day is not too far distant, when newspapers will begin using coated paper.

LABOR TURMOIL--ITS EFFECT ON

Kalamazoo Developments Stimulate Sentiment for Uniform Agreements

Labor was still the principal unreconverted factor in the industrial picture in the United States during November. This situation showed no sign of changing materially for many weeks ahead. To say that labor was the No. 1 problem besetting management in the pulp and paper industry, was putting it mildly.

A half dozen staff representatives of PULP & PAPER INDUSTRY, traveling during recent weeks to mills in all sections of the nation, found many management-labor conferences being held. They also found a variety of ideas for meeting the situation being discussed by mill executives and union leaders.

So far as the future of pulp and paper operations were concerned, there were several important considerations that seemed to be getting too little attention. These were:

1. During the war, pulp and paper machines were taxed to the limit of their capacity to serve essential war needs. Now, with the war over, the industry found itself unable to go out and stage a whirlwind sales campaign as, for instance, the big automobile industry can and will do, in order to earn the money to balance higher wages. Paper machines can run just so fast . . . and they can't run a foot per minute faster, even to pay crews bigger wages. It will take years to modernize and increase mill capacities. Besides, it is generally agreed that there is a definite limit as to how rapidly forest resources ought to be cut.

2. Thus the only way to meet demands for any substantial increases in wages apparently is through higher prices. An American Paper and Pulp Association survey shows that since 1941 paper prices have risen only 5% while labor costs have mounted 52%, even before the post-war wage increases were even considered. It's just ABC to any school-boy that increased prices will wipe out the wage gains of labor.

3. The pulp and paper industry during the war operated at a high production rate with short crews, virtually skeleton crews, because of army draft and preference given other industries for labor. There is



J. D. ZELLERBACH, President of Crown Zellerbach Corp., who represented all U. S. employers as a delegate to the International Labor Organization meeting held in Paris during October. Here he is shown boarding a trans-Atlantic plane in New York for France, whence he recently returned.

Former Secretary of Labor Perkins and Senator Thomas of Utah headed the U. S. delegation. Mr. Zellerbach's appointment to this delegation by the State Department was in recognition of his outstanding work in the field of labor relations for the U. S. National Association of Manufacturers and as chairman in labor negotiations of the Pacific Coast Association of Pulp & Paper Manufacturers. He was Co-Chairman of a recent Labor Forum in San Francisco.

still a critical shortage of labor. Therefore, without the rollback in hours and sufficient labor, the cost of any wage increases would be much greater than the percentage increase for the individual employee would indicate.

Strikes and Threats of Strikes

Actually, in most regions of the country, management and labor in the pulp and paper industry are cooperating much better than in other industries. On both sides, a reasonableness was tempering most of the negotiations now under way. Labor discussions were being held in hundreds of mills over the land. No drastic steps had been taken in most areas as this issue went to press, although there was the threat of a strike on the Pacific Coast (a strike vote was set for Nov. 20) and there were a few isolated strikes reported in individual paper or converting mills in other regions.

But the immediate major threat to the three billion dollar U. S. pulp and paper industry as a whole was not disaffection in its own ranks but strikes in outside industries. For instance:

1. A few hundred members of the American Wire Weavers Union, whose strike had run nearly a month by mid-November, would not have to stay out much longer to effectively tie up this industry.

2. Just 50 men, on strike at a lime quarry in the South, brought several hundred more out on strike in sympathy and thus threatened to shut down about half of the bleach plants in Southern pulp and paper mills for lack of chlorine.

3. An alum strike on the Pacific Coast was forcing pulp and paper mills in that section to go far afield to obtain that necessary raw material at additional expense.

4. And, of course, the AFL loggers' strike in the west, which had reached its eighth week as this issue went to press, had shut down an insulating board mill and was endangering several pulp and paper mills by bringing log inventories down to critically low figures.

In none of these strikes—loggers, wire weavers, chlorine or alum industry—were the issues any business or direct interest of the pulp and paper industry. Yet, the latter industry was paying a heavy penalty because of this use of strike power to force settlements favorable to the unions.

Most paper mill executives had little, if any, information about the

THE PULP AND PAPER INDUSTRY

Some Ideas Advanced by Executives; How Outside Strikes Peril Mills

wire weavers strike, which was so ominous for them. In certain mid-West mills, wire inventories were dangerously low. Most mills have wire inventories for about 90 days and so most of them were believed able to carry on through the end of 1945.

The Weavers AFL union began its strike Oct. 17, with a demand for a 15% increase on piece work, with other adjustments which would give them about a 25% overall increase; also double time for holidays worked and pay for six holidays without working, as well as vacation periods.

The loggers strike on the west coast was complicated by the rivalry between the AFL unions, with 60,000 employees idle, and the CIO unions which were continuing on the job and negotiating for some 40,000 employees. The AFL was adamant in its demand for \$1.10 an hour minimum pay (up 20 cents), which is just about twice the scale in the South. The cost of labor in wood production is such a big factor that this situation could not help but influence in an important way the future competition between Pacific Coast and Southern forest products.

The CIO unions on the Coast negotiated a 12½ cent increase for a portion of its membership, but reports indicated many would not get any increase. The AFL, caught in the bite of the line, made urgent appeals to the CIO to strike because it was obtaining by negotiation only about half its demand for a 25-cent boost.

Regional Labor Agreements?

Throughout the country, PULP & PAPER INDUSTRY found a great deal of discussion—pro and con—among mill executives and managers regarding regional uniform labor agreements.

Probably the biggest stimulus to this discussion was last month's general pay raise in the Kalamazoo, Mich., area of 15-17 cents an hour. A 5-cent increase in one of Kalamazoo Valley mills was the initiatory move, then came the big jump in another mill and, finally, all mills in the region increased 15-17 cents to reach a common level.

There were no strings tied to these

increases—no roll-back or real concession of any kind by the labor unions.

Immediately, repercussions were noted throughout Wisconsin and in northern Minnesota. Certainly, the increases could not be kept a secret in any part of the country and, as a matter of fact, the word of "victory" was telegraphed to AFL unions throughout the country even more quickly than it reached the unorganized units of management.

The proponents of uniform labor agreements in the Middle West immediately became active, pointing to this development as a shining example of the close nation-wide cooperation of the unions, "working one mill off against another." Sometimes the technique appeared to be merely "soften" up one mill, then concentrate the wage drive on a nearby competitor, then move back for the "kill" to the original mill. This may seem a harsh way of describing what actually happens, but there is no doubt that shrewd generalship has been shown by the unions on a regional or even national basis.

It has resulted in considerable sentiment among management for a uniform labor agreement that might take into one bargaining unit all the mills of northern Minnesota, Wisconsin and southern Michigan, or at least, all of Wisconsin.

Naturally, the strongest opposition to this proposal is among two types of mills in those areas. First, certain mills which have had extraordinary success in handling their own labor relations and where an alert management frequently has taken the leadership itself, instead of permitting the union to "carry the ball." Second, mills in remote areas where it could be argued that the cost-of-living is materially lower than in other areas and, therefore, uniform wages with the populous centers would be unjustified. In this group also are mills whose costs of manufacturing are high, because of transportation or other factors.

It also was suggested by one Wisconsin mill executive that unless great care was used in reaching a uniform labor agreement, the mills might be placed in the position of

violating anti-trust or other similar laws.

But British Columbia mills just recently began negotiating as a unit. And in the South, Southern Kraft Div. of Int. Paper Co. settles all its labor problems for eight mills at one annual meeting in Mobile with representatives of five unions. This sets up standards for practically the entire Southern pulp and paper industry.

Coast Agreement In Peril

The Pacific Coast for over ten years has pointed to its Uniform Labor Agreements for thirty-three Washington-Oregon-California mills as having eliminated competition in union contracts among mills as well as among different unions in individual mills. Critics of the system, however, have pointed out that in that period, the unions have persistently stressed wage increases as their sole or chief concern, pushing the wage scale on the coast to the highest level in the entire industry.

Early this month, the coast agreement definitely was under a cloud and its future success seemed to be a moot question. For the AFL unions had refused to accept a War Labor Board decision which denied them a 20% wage increase. The WLB declined to consider any such increase unless it were tied to a rollback to 40 hours. The WLB, however, approved shift differential increases ranging from 2½ to 6 cents an hour. The unions called for a strike ballot, which was to be counted on Nov. 21.

In some mills there is even competition among unions in a single plant for wage increases. For instance, one northern mill has been dealing separately with nine different unions and only now is starting to organize a common labor council for the mill.

Opinions of Management

A widely held opinion among management, according to many leaders interviewed by PULP & PAPER INDUSTRY, is that wage increases with a 40-hour week or even a 40-hour week, plus 8 hours overtime, will make it necessary to consider further increases and do the job all over again when the 40-



THREE TOP POSITIONS in Union Bag & Paper Corp. are now filled by above trio, according to announcement of President ALEXANDER CALDER.

H. S. DANIELS (left), is promoted from Vice Pres. for Sales to Executive Vice Pres. DONALD J. HARDENBROOK (center), is promoted from Asst. to Pres. to Vice Pres. in Charge of Industrial and Public Relations and Woodlands. GUNNAR NICHOLSON (right) becomes Vice Pres. in Charge of Manufacturing. Only last month we announced his appointment as Mgr. of Manufacturing and now he is rewarded with the title of vice president.

hour week is actually established, a development generally expected in view of the national government's attitude on the matter.

In November, the 40-hour week was still purely an academic issue. Most mills still lacked sufficient labor to fill out a 48-hour week and many were still using crews up to 56 hours. On the Wisconsin River, on the Columbia River and in the Ouachita River Valley in the South, there were mill executives who told PULP & PAPER INDUSTRY that their labor shortages were unquestionably worse than they had ever been during the war.

In Wisconsin, for instance, construction jobs delayed until now by WPB restrictions, were competing with mills for labor. In the South, the withdrawal of thousands of War Prisoners from the woods and "cotton picking time" were two factors which rapidly reduced available labor resources. Ten thousand war prisoners had been removed, leaving only about 5,000 on the job, averaging 1 1/3 cords a day.

Nearly everywhere, PULP & PAPER INDUSTRY found that war workers were taking their "unemployment insurance" for 20 or 25 weeks, in accordance with local law, and had no intention of working until that period was up. In Alabama, and reportedly other Southern states, however, there were clauses in the law which denied the \$25 a week "insurance" to anyone who refused as good a job as he or she had before the war. This effectively stymied, for instance, the insistence by former domestic servants that they be given jobs as "engineers" or "welders" or equivalent jobs to their wartime employment. The CIO

was objecting strenuously to this interpretation and areas where it was invoked were possibly taking a chance on losing migrating labor.

Incidentally, it was noticeable that the newspapers in the pulp and paper "states," as everywhere, were failing to report what actually was happening under the "unemployment insurance" laws. Also, it was noticeable that newspapers were failing to report the actual hardships imposed on the general public by certain types of strikes.

A Counter Proposal

One mill executive, who has had a great deal of experience in labor relations, expressed the opinion that in the present wage negotiations going on in many mills, the management should insist on receiving something tangible in return. He pointed out that the labor unions had decided not to wait to "earn" any increases but were demanding them even before reconversion or establishment of peacetime production.

He argued that management's counterproposal to the unions should be a definite agreement on a nominal 40-hour week, even though such a reduction of work-week was literally impossible at the present time. The question should be settled in such a way that it would not arise again. The 40-hour week would be implanted in the minds of employees now, so there would be no need of adjustment later. Of course, now some employees, or perhaps most of them, would have to be asked to work an additional eight hours, but it would be worth the trouble to ask them now and to set up the 40-hour week on this basis.

The unions, it may be noted, stress the hourly wage rate when times are slack and the hourly rate controls the size of the check. Now their tactics are to shift emphasis from the high rates to "take home money"—the new basis being presently to their advantage.

One manager of a Southern mill cited examples in his mill to show how the percentage figures mentioned for pay increases in current discussions do not reveal what actually may be a true accounting of labor's own return. His case, taken from the records, is this:

Before the war, four men employed in an evaporator room were paid, say, \$1 an hour. In a week they earned \$172 (\$43 each). One went in the army; the other in a defense plant. They couldn't be replaced so the two men left on the jobs each worked two shifts (the nature of the jobs did not make this difficult—long hours but easy work). With overtime over 40 hours, the company paid out \$218 (\$109 to each one).

Now the other two men have returned. If the motor industry strike is the nation's "test tube" and should it establish, say, a 30% increase, then these four men would each get a \$12.90 boost over their \$43 pre-war wage. Thus, the company would pay out \$223.60 to the four men (\$55.90 each).

The men who stayed in the mill during the war, however, actually will "take home" only half of what they took home during the war and the question is, are these men going to be satisfied? Hiring returned service men actually will reduce their income. This is not an uncommon situation, although varying periods of overtime were put in by crews during the war. Mills, for example, which ordinarily employed 1,000 men, actually operated with only about 750.

It is evident that with a rollback in weekly hours, and sufficient crews to eliminate any need for overtime, the pay increases would not materially increase the cost of operations in most pulp and paper mills. But without sufficient labor, the pulp and paper industry—like any other one—could meet the increased labor cost only by getting a higher price for their products.

One mill manager suggested that labor leadership might have shown more wisdom by asking for only a small raise this year—say 5%—which might not have forced a break in the price front and thus would not be wiped out by higher prices all along the line.

PROMINENT LOGGING FIRM BUILDS PULP-BOARD PLANT

Simpson Logging Co., one of leading Western operators for 50 years, starts building up-to-date insulating board mill. Will use Douglas fir heretofore burned or left in woods.

Simpson Logging Co., with headquarters at Shelton, Wash., one of the oldest and largest logging, lumber manufacturing, plywood, and door producing firms in the West, in celebrating its 50th anniversary early this month, announced its plans for building a complete modern insulating board mill.

The new plant will have an initial capacity of 50 tons but the company plans, after this unit gets operating smoothly, to increase its capacity very materially.

Thus, one of the outstanding woods operators of the West now joins the pulp and paper industry.

The company is erecting this plant in order to provide another outlet for its raw material and for more complete use of its wood resources. The raw material to be initially used will be Douglas fir slabs which develop in the operation of its two sawmills at Shelton. Detailed studies, however, have been made of material now left after its logging, and eventually it is planned to utilize this so-called forest "waste" in its new board mill.

Simpson Logging Co. has in recent years set up a plan whereby it hopes to operate perpetually on a sustained yield basis, using timber from its own stands of virgin timber and second growth now close to commercial size, as well as state and forest service stumpage.

The new board mill will occupy a site adjacent to its No. 2 sawmill, which in turn is close to the No. 1 mill. This No. 1 mill is used in part as a breakdown plant for Rayonier Incorporated's pulp mill at Shelton. Power for the new plant will be obtained from the joint power plant owned by the Simpson Logging Co. and Rayonier. The site for the plant is now being filled and construction of the wood and chipping plant has already started.

This unit will be equipped with an hydraulic barker.

In making the pulp, a combination system will employ an Asplund Defibrator supplied by Paper & Industrial Appliances, Inc., and also a Bauer machine. Chips are ground

and cooked simultaneously. This system will be used because the management believes it will provide the best possible blend and therefore a high type pulp which is a major objective. This method is in use elsewhere but not with Douglas fir wood.

Downingtown Machine

The board will be manufactured on a Downingtown fourdrinier from the Downingtown, Pa., machine builders, and a Coe dryer. The initial board will have a maximum width of eight feet and will be marketed for insulation, acoustic and other uses.

President Chris Kreienbaum of the Simpson Logging Co. told PULP & PAPER INDUSTRY that they had hoped to be able to get the new mill into operation by the middle of 1946 but that it is now apparent this will be impossible.

"Perhaps," he said, "we can get going by fall.

"This is a new venture for our company. In fact nobody has yet done what we hope to do. Laboratory tests indicate it will be entirely feasible but it would be strange if some problems did not develop. When we get the mill operating and iron out possible problems, then we can plan on expanding this new department of our business. We want to do this because we want to, utilize more of our raw material. We hope the time will come soon and we will be able to take out of the woods all of this valuable natural resource."

The mill is expected to initially employ about 100 men.

Mr. C. J. Macke, vice president of Simpson Logging Co., has had charge of the engineering on the new board mill. Mr. Macke engineered and directed the construction of the joint power plant and more recently built and operated the company plywood plant at Shelton.

Hawthorne Gets New Equipment



G. H. GERPHEIDE (left) is President of Hawthorne Paper Co., Kalamazoo, Mich., which makes 20 tons a day of bond, blue print, offset and rag specialties on two Fourdriniers. Mr. GERPHEIDE and M. H. STETSON (right), Vice President and Sales Manager of Hawthorne, are looking forward to increased business with higher quality papers. Hawthorne, like many other companies, is improving its paper products, aiming at higher returns for higher quality.

To this end, Hawthorne already has installed a new wet end-Fourdrinier part on its No. 1 machine, which has been made for the Kalamazoo mill by Beloit Iron Works. This machine has a 100-inch wire.

The mill also has out-grown its old filtration plant and is putting in a new one of 3,000,000 gals. capacity per day, engineered by Hungerford & Terry. Also a new Wickes boiler is on order for delivery about January.

GRAB YOUR HAT! THE RACE IS ON FOR MAGAZINE PAPER

Is this contest between Time, Inc., and Curtis Publishing Co. good or bad for the industry as a whole? What will developments at Bucksport, Bryant and NY-Penn mills mean to others in field?

The recent purchases of pulp and paper mills by big magazine publishing houses and the tremendous expansion under way in coated paper production for these magazines has started a lot of mill executives asking this question:

Is this good or bad for the industry in general?

Time, Inc., now is owner of the Bryant Paper Co. in Kalamazoo, Mich., and the Bucksport, Me., mill of Maine Seaboard Paper Co. It may soon own another paper mill.

From these mills and about a half dozen others, including the first on-the-machine high speed coated paper mill in the west, being developed at West Linn, Ore., by Crown Zellerbach Corp., Time-Life will be getting—if it is lucky—somewhere around a quarter of a million tons of paper annually. It may be 18 months before West Linn is producing paper for a million West Coast subscribers, to be printed on the new Time-Life presses at the Pacific Press (formerly Adcraft) in Los Angeles.

Meanwhile, the Curtis publications are stepping out, too, assuring themselves of exclusive rights to production of two Pennsylvania mills and likewise establishing sources of supply in other regions of the country.

Peter Paine, vice president of New York & Pennsylvania Co., said the Curtis Publishing Co. plans to acquire 30% interest in "a new company" to produce magazine paper. Cash only is involved and the entire production of the magazine paper will go to Curtis, although other lines of paper also will be made and marketed. Under this plan the NY & Penn mill's capacity will be increased from 50 to 100 thousand tons annually with a new 160-inch Belloit machine at Lock Haven. Approval of the plan will be asked by NY & Penn stockholders Nov. 28.

Consolidated Water Power & Paper Co., one of the major producers of magazine paper, is adding one machine at its Biron mill and converting two news machines at the recently purchased Wisconsin River Paper Co. to coated paper production. Thus, it will probably increase its output roughly 50%.

Kimberly-Clark Corp. announces plans for two new high-speed machines to make coated magazine paper at Niagara, Wis.

Time, Inc., has purchased the Bucksport, Me., mill of Maine Seaboard Paper Co., for a reported \$4,300,000 in cash and assumption of a \$1,700,000 debt. St. Regis Paper Co. will operate this mill for Time, Inc., according to Roy Ferguson, president of St. Regis (see Page 62).

It is also reported authoritatively that St. Regis has acquired the Watab Paper Co., Sartell, Minn.

St. Regis is adding a machine at Deferiet, N. Y., and equipping two machines there for coating—one already being so equipped.

It is almost assured that the Bucksport mill will make only coating raw stock—and this only after it has fulfilled 1946 and 1947 newsprint contracts. This mill, which has a daily capacity of 350 tons, is equipped with big newsprint machines and no one has yet devised a way to coat on such large equipment. But the stock produced there could be coated by St. Regis or Bryant.

Two coated paper machines are being made and equipped for Crown Zellerbach at West Linn.

Minnesota & Ontario Paper Co. will have two new coating machines of high speed which could be fed by three or more M & O paper machines. Only part would be magazine quality.

A coating plant and other improvements speeding up and making more efficient existing equipment is just part of the program for the Bryant Paper Co.

In still another mill in Michigan, plans are under way for another new coated book paper machine.

Champion's Canton, N. C., mill will be augmented by one of the biggest book paper machines—a \$2,000,000 addition.

Why all this frenzied activity by the big circulation magazines? In the first place, these magazines have to go out and sell their advertising on a contract basis for a year ahead. They have to be sure they will have the paper and the competition among these magazines for advertis-

ing accounts is very keen . . . and therefore, it is just as keen for paper supply. Both Curtis and Time also plan new magazines.

By their actions, the publishing houses apparently are betting on fantastically high circulations as well as a tight paper market for at least ten years—maybe 15.

Will they be extravagant in their paper mills? Will their methods make it tough for other pulp and paper mills? Will they raid mills for skilled labor or unnecessarily boost labor and other costs? At first blush, one might anticipate such dangers because, obviously, the paper mill is only a comparatively small unit in such vast enterprises and the money spent on a few mills would be only a small part of their total expenditures.

But over a long period of time, it seems reasonable that these mills can only be of value to the publishing houses if they can make their own paper as cheap or cheaper than it can be bought.

They will need low cost, high speed production. Therefore, it is also reasonable to expect that the big publishing houses will modernize the mills which they control and wherever modernization and increased efficiency is effected in the industry, it can only be of benefit to the whole industry.

Some of the paper mills dependent on outside sources for their pulp have been forced to cut prices lately in order to compete with self-contained mills. One independent paper mill executive expressed the view that every mill bought by a publishing house is just one more mill taken out of this kind of competition.

The more mills that go into magazine paper production, the less remain for the general competitive field.

So far, Time, Inc., has won the highest praise from leaders in the pulp and paper field for the "ethics" it has demonstrated in its first plunge into this industry.

For instance, it could have cut off all the regular customers of Bryant Paper Co., but instead it has shown the utmost consideration for them. Only a few weeks ago it sent a tele-

gram to each of these customers, notifying them that for a six months period they may have 50% of the paper they received during a six months' base period ending last Sept. 30. Eventually, these customers will have to get their paper elsewhere but they are being given plenty of time to make the adjustment.

Curtis is showing equal courtesy to Lock Haven customers.

Time-Life also is starting out as a member of the pulp and paper "family" by further demonstrations of a sense of responsibility to the entire industry and a desire to be a "good citizen."

Consider, for instance, the new research laboratory being built across the street from the Bryant mill in Kalamazoo. Here, under one roof, and for the first time in the history of pulp and paper making, research will be carried out in all phases of publishing—papermaking, printing technique, ink make up, coatings, press plates, etc.

This will eventually benefit the entire industry. In fact, PULP & PAPER INDUSTRY is informed by a reliable source that the important developments in this laboratory will be available to the entire industry.

Time-Life is carrying on other research work. It is building a big machine shop in Stamford, Conn., for mechanical work. In New York and Chicago other studies are being carried out. It is financing a pilot plant on ink and coating with "zein"—the protein element in corn. It has electrical engineers studying electronic controls and chemists working on dispersion problems.

So far, the comments that PULP & PAPER INDUSTRY has heard from other industry executives concerning the entry of Time-Life in this field have been punctuated with praise and admiration for "the way they do things"—"their youthful spirit and resourcefulness"—and "their sense of responsibility."

To round out the picture (and this may be a surprise to some), the top production executives of Time, Inc., have revealed in informal discussions that they are unusually well-informed regarding the "facts of life" as they relate to the forestry problems and timber resources of the entire North American continent. They have taken the trouble to find out about a fundamental subject on which their whole program may stand or fall and their ideas on the subject are sound, according to persons with whom they discussed the matter.

No doubt, Curtis executives are similarly well-informed.

INDUSTRY OFFICIALS COMPLETE EUROPEAN MISSION



THREE PAPER INDUSTRY MEN who recently served on an U. S. Army Mission to help get European mills started up. ARTHUR WAKEMAN (left), of Kimberly-Clark Corp., is standing on a Belgian beach in war zone, just two feet from a sign which warned "Beware—Booby Trap Mines Here." In the jeep are CHARLES GRONDONA (at wheel), of Crown Zellerbach Corp., and ARTHUR BALKO, of Mead Corp.

With "mission completed," C. A. Grondona, Crown Zellerbach Corp., and Arthur G. Wakeman, Kimberly-Clark Corp., returned to the U. S. recently after more than three months in Europe for the U. S. Army. The third member of the mission, George Balko, Mead Corp., is expected to return to Chillicothe, Ohio, as soon as his three months' tour of duty expires.

As described exclusively in the July PULP & PAPER INDUSTRY, the three prominent paper industry executives were given the rank of colonel and their job overseas was to assist in getting European mills into production for the needs of the Army. When interviewed in New York last month by a representative of this journal, Mr. Grondona was modest about their accomplishments, but another source revealed that the mills which came under their treatment are now operating—evidence enough of the success of their trip.

Coal is still one of the critical factors in the paper industry of Europe, Mr. Grondona says. Mines still are not operating anywhere near 100 per cent, and there is already a stringent shortage of home fuels and nothing approaching the amounts needed to run the steam and power plants which are part of the plant set-up of the majority of mills.

The trio were mainly interested in fifteen Belgian mills, making their headquarters in Brussels, and moving out into Germany, France and Holland. Six of the Belgian mills had been shut down since 1939, and others, even if undamaged, had been operating at extremely low capacities especially if located in strategic areas where transport facilities have received a thorough bombing. Of interest to many who have heard rumors of the destruction or partial destruction of the famed Van Gelders Mill at Velsen in the Netherlands, Mr. Grondona stated that he visited this mill and found it 100 per cent intact. On the average, about ten per cent of the mills were critically damaged in Belgium and Holland. In Germany, however, the story written by

the Air Forces was different. Some mills were untouched except for blown-out windows; others were completely demolished. Their fate depended upon whether they were located in a strategic area destined for total obliteration by the Allies' program of precision bombing.

Mr. Grondona declined to comment on the general industrial situation in Europe, but he did indicate that the outlook in the mine labor situation was momentarily discouraging. In addition to their fuel problems, European paper mills are, of course, confronted with a number of postwar difficulties not faced by U. S. mills.

European mills on the whole, with the exception of newsprint mills and certain mills in Belgium such as Langerbugger, are designed wholly for small orders and their entire layout is engineered for rapid changes in orders. In Belgium there are only two mills producing pulp exclusively, one a sulphite mill and the other a Kraft mill. The converting mills use Kohler gangs or Lannoyes and in refining there is generally total absence of jordans, beaters being used almost exclusively except in the production of newsprint. Most mills produce their own power and their plants are quite adequate, Mr. Grondona said.

While in Europe he investigated the persistent rumors that Germany has been making wide use of sulphite waste liquors, and Mr. Grondona followed this up in the hope of obtaining some constructive data with regard to it. His findings, checked with the high officials of German companies and with European technicians, indicated that only a small quantity of waste sulphite liquors were being utilized percentage-wise, and that the chief utilization was in government sponsored and financed alcohol plants. In a country until recently at desperate war and where close utilization has been a fetish even in peace-time this apparent lack of success on the part of the Germans came as a surprise to the investigators.

Increasing Integration of Industry Is Forecast--To Be Forced By High Costs

Shadows of the future of the pulp and paper industry were cast before a meeting of superintendents of the Minnesota and Wisconsin mills last month.

It was a significant session in Rhinelander, Wis., and the speaker was President Folke Becker of the host mill, the Rhinelander Paper Co.

His message is one that will attract widespread interest of mill executives everywhere because of the interesting predictions which he made.

In substance, his principal prediction was that greater integration of pulp and paper making is in store for the industry. His reasons for this prediction were that the high cost of materials and of labor were mounting so rapidly, and also taxes were becoming a big factor. Because of these mounting costs, he said the "number of people" who can expect to make profits in this business may have to be reduced.

From the tree in the woods to the finished products, said Mr. Becker, there will be moves made for greater stream-lining and integration of enterprises and some of those who are able to make profits today will find the conditions of the future greatly changed. The big operations



FOLKE BECKER, President of Rhinelander Paper Co., who predicts greater integration of operations in future pulp and paper industry. His reason: High costs of operations must necessarily reduce the "number" of possible profits.

will tend to do more finishing and conversion.

The primary units of the industry, he said, will have to extend the scope of their activities in order to make a reasonable profit if they hope to survive.

Mr. Becker's speech is bound to stir the imagination of pulp and paper men everywhere and it unquestionably is one of the most provocative speeches made at any recent industry meetings.

He also told the superintendents that it is up to them to keep up with the new scientific developments in the industry, many resulting from wartime impetus, in order that their mills may be up-to-date in every respect.

These developments were coming to the fore in greater number now that the war is over.

The new chairman of this Northwestern Division of the Superintendents, elected at this meeting, is L. J. "Lefty" Smith, manager of Combined Locks Paper Co., Combined Locks, Wis., a brother of Red Smith, the New York Giants football coach and son of Paul Smith, retired superintendent at Blandin Paper Co.

R. J. Nugent, Kraft superintendent, Nekoosa Edwards Paper Co., was elected first vice chairman, Sigge Ekman, sulphite supt., Rhinelander Paper Co., second vice chairman, and Frank X. Kreiling, mill No. 1 supt., Thilmany Pulp & Paper Co., sec'y-treasurer.

Trends in New Machinery and Processes Are Outlined at California Meeting

By an odd coincidence, J. E. Maurer, vice president of Fernstrom Paper Mills, told a group in Southern California that he foresaw the day when paper mills would be doing more converting—just a few days after Folke Becker of Rhinelander Paper Co. was making a similar prophecy to a group in northern Wisconsin.

Mr. Maurer, addressing Papermakers and Associates of Southern California, at their meeting in Los Angeles Oct. 18, reported some of the new trends in paper-making machinery and processes which he observed on a tour of 18 Middle West and Eastern mills and 14 machinery and equipment plants.

He stressed that papermaking is changing from an "art to a science" and the old days of feeling the pulp in the beater are changing to controlled beating cycles, freeness readings, recording meters "for everything," electronic controls and many other mechanical and automatic aids to the production man.

Mills which prosper, he said, will have

to make use of all these technological aids and they also will have to operate under a sound accounting system—"usually the badge of a successful company."

"A cost which is known is a cost which can be reduced," said Mr. Maurer. The part of his talk which dealt with new machinery and processes follows:

"In talking of paper making problems with production men in various locations, we find greater and greater emphasis being given to head box, slice, and formation area on the wire. Paper machinery manufacturers are devoting a lot of engineering and brains to solving this intricate problem in hydraulics.

"Several years ago it was thought that the number of driers was the main controlling factor in obtaining high speed operation, and there was the era of concentration on Anti-friction bearings to make high speed possible.

Head Box Designs

"Paper men now appreciate that paper qualities will be competitive and that

specifications will be exacting for all the various grades of paper, heavy as well as light. Perhaps when the intensive research on head box, slice, and formation area of the wire has been completed, we will find that many grades now run at low speeds due to formation limitations will be run faster.

"New head box and slice designs are being developed and offered by several manufacturers. In addition, some mills have their own individual design, different from the offerings of the regular builders.

"Another machinery development that should be mentioned is the big impetus now developing for the use of Yankee driers. We find Beloit and others now offering Yankee driers for drying pressures of 100 pounds. With kraft machines, facial tissue machines, and toilet paper machines all operated at very high speeds we can visualize considerable increase in the use of high pressure Yankee driers. It won't be long until even 100-pound pressures will not be consid-

ered high for these new super speed machines on cellulose wadding and related products. You hear talk of speeds like 2200 feet per minute. Who knows what the machine of 1960 will be like? How long will it be until a few atoms thrown into a Yankee cylinder will eliminate the need for steam!

"It goes without saying that the paper machinery builders are now flooded with business and that those I visited (Beloit, Bagley and Sewall, Black-Clawson, Dilts, Shartle Bros., Valley Iron) are more than busy. The shops of these builders were still quite filled with war work during June and July, but I imagine they are in the throes of their cancellations now, and after the shops are cleared and the skilled labor supply becomes stabilized that paper machinery will be delivered in the largest volume in history. All these machinery builders are planning expansion in paper machinery over anything they have done before. New buildings were erected during the war and these were designed to be ideal for paper machinery manufacture.

Praises Hydrapulper

"Special mention should be made of the Hydrapulper which is a unit of greatest interest to any non-integrated mill. As a replacement for breaker beaters, and in order to do a thorough job of de-fibering, it seems to be in a class by itself, and is being bought throughout the country. In the Hydrapulper, a complete batch is loaded at one time, and in just a few minutes the whole batch is completely broken up and ready for the refiners. One mill in the east uses a single Hydrapulper to break up the pulp for six fairly large paper machines.

"The subject of stock treating, beating, and refining is always a fascinating one to consider. Stock treatment may be divided into two main divisions, batch treatment and continuous process treatment. The simplest example of batch treatment is the old fashioned beater where the stock is beaten until the desired freeness is attained. Then it goes through chests and a jordan for "touching up" and on to the machines. The beater system may always be used on high grade and rag papers, but if an observation of many progressive mills is indicative, it looks very much as if the day of the beater is just about over for high speed operation.

"The modern type of batch treatment calls for larger batches so as to get greater uniformity and controlled freeness and treatment. In a complete batch treatment system, we find important development in agitation and chest design. The heart of the successful batch treatment system is in the design of the agitating chests. We find both vertical and horizontal mid-feather type chests. Also we find the use of propeller type agitators quite common in batch treatment systems.

"The Hydrapulper has probably made the best showing on such large batch treatment systems and some of the best mills in the country are well satisfied with batch treatment. A variety of types of pumps and refining units can be used for this type of treatment in addition to the Hydrapulper.

"What we at Fernstrom Paper Mills (as well as other mills) believe to be the modern treatment system is the continuous process system. In this case, agitation of the chests between the pulper and the

HAMMERMILL BEGINS \$5,000,000 EXPANSION

Hammermill Paper Co., Erie, Pa., has announced an approximate \$5,000,000 improvement and expansion program which calls for new paper machine, larger and faster than any of the company's six machines now in operation.

Work is proceeding to complete a power house addition, halted during the war, which will include two 150,000-lb. high pressure boilers and new turbine.

O. C. Schoenwerk has for a long period been a consultant to this company on its engineering activities.

treatment units is very important, but not quite so critical as on the batch system. It is found that requirements for floor space are at a minimum. In this continuous process method of fiber treatment there will be perhaps two or more refiners in the line, with or without jordan, according to the requirements of the product. Such units as Mordens, Sutherlands, and Hydrafiners are used, and there are other types also. No chest of treated stock is ahead of the paper machine, but the horsepower on the treating elements is increased or decreased as the quality of the paper requires. Samples of stock may be taken at different points to determine the freeness drop which occurs through the various treating units.

Use of White Water

"With the probable continued high cost of pulp and shortage of pulp it will be found important in the future for the paper mills to be less wasteful with their fiber which goes to the sewer. Many mill managers would be shocked if they realized that the value of the fiber which goes to the sewer is a very large figure when compared to the net profit of the company. Some otherwise very progres-

sive mills seem to give little concern to fiber loss and accept a poor yield of paper per ton pulp as inevitable. Other mills measure fiber content of their effluent most carefully and install the best equipment possible to reclaim fiber, and thus also obtain water which may be reused in the wire showers and other places. Perfection would be a closed system where no water went to the sewer until it was necessary to wash up to remove slime, etc. On some types of felts and on certain kinds of papers it is not now considered possible to use white water on the felts. I visualize that before too many years improved savealls will become general and that slime killers will be developed that really work. Also I visualize that the resistance on the part of many paper machine operators to the use of white water will vanish, and it will be found that non-integrated mills will no longer have to be located on rivers, since the use and waste of water will be so small. Even some of the fully integrated mill operators could think of fiber loss, though in most cases such mills use the paper mill waste water in the pulp washing operations.

"The subject of fiber furnish should be touched upon at this time also. During the war, the non-integrated mills have been at a serious disadvantage due to the shortage of wood pulp. With the supply curtailed, it has thus been necessary for most non-integrated mills to use various types of waste paper and reclaimed stock. It would appear that for many grades of paper the mills have learned how to use waste papers and that in reasonable quantities it will be possible to continue the use of this secondary furnish in the future. This will be a good thing, since it will tend to reduce the drain on our forests. The pulp mills are installing hydraulic debarkers which make it possible to obtain more tons of pulp from a quantity of logs. We find conservation methods of all kinds being developed all over the country.

"The subject of converting in the paper industry is also worthy of discussion at this point. I called on several of the leading converting machinery builders and all such builders have large backlogs of orders for machinery.

"Some paper mills are backward in their converting operations. Surely the time is not far away when improvement will be possible in converting methods. In the toilet paper and facial field and in candy wrapping and other specialty applications we find real efficiency, but in the usual paper mill operations of cutting, packaging, and counting, there has been no real improvement in 20 years.

"With the high labor rates now coming to the paper mills we will find an insistent need to get away from many of the old fashioned practices and poor machinery arrangements now found in paper mills which have carried techniques to a fine point in other phases of their business."

Joe Waber at Wabash

Joe Waber, former technical director of the Rex Paper Co., Kalamazoo, Mich., and former chairman of the Michigan superintendents group, is now technical director at the Wabash, Ind., mill of Container Corp. of America.

He brought a Wabash delegation to the last Superintendents' meeting in Kalamazoo.



J. E. MAURER, Vice President, Fernstrom Paper Mills, Inc., Pomona, Calif., who talked before the Papermakers and Associates of Southern California, on "Trends in Paper Mill Machinery and Paper Mill Operation."

HERE ARE SOME WAYS TO MAKE

Union Baggers Learn Their Lessons With Pictures

EXECUTIVES, as well as the average employe of a pulp and paper mill, seldom "warm up" very much to long treatises on safety.

The biggest problem in putting over a safety campaign in any mill is the problem of capturing the attention and interest of the very persons who are trying to be "saved."

There are far too many dull speeches and dull articles on safety, made or written by mill executives or safety executives who are somewhat in the position of a fish out of water when they try to do either. But they are still being made or written, judging by the flood of this material that comes every month to the editor's desk for this magazine. Occasionally, one is a really well done piece of work and it has been published.

So it is like a breath of fresh air in a smoke-filled room to see the somewhat original technique used at Union Bag and Paper Corp., Savannah, Ga.

The thought occurred to Robert W. Gray, the safety director of this company, that actual photographs of the right and wrong ways of doing things in mill work, pictures showing exactly how employes often take their lives in their hands or risk loss of limb or other serious injury, would be a swell way to impress upon them the importance of "work-

HEADED FOR THE DOCTOR.
Here is S. E. HINELY of Multi-Wall Printing Dept., Union Bag plant, succumbing to that old temptation to just quickly wipe off that one little particle of paper from a moving press roller.



ing and thinking" safety.

"We do a lot of talking about safety being just as important in our operation as production," said Mr. Gray. "Maybe we can get our story over better with pictures."

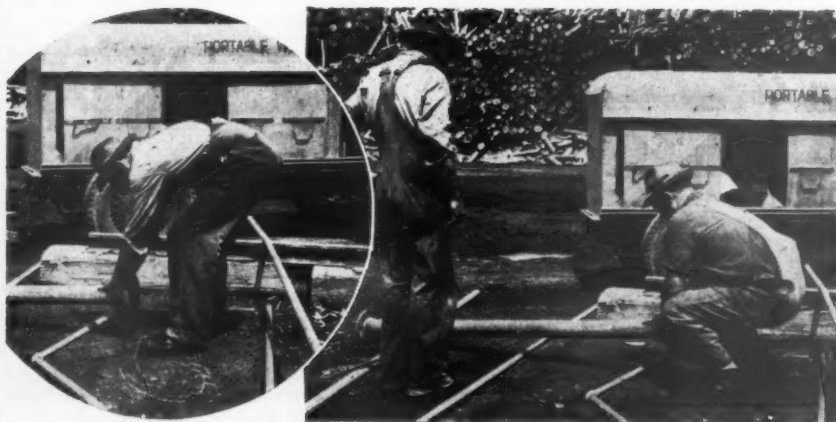
G. W. E. Nicholson, then resident manager at the big Savannah mill and now in charge of manufacturing at all the Union Bag operations, quickly responded by giving Mr. Gray his support and encouraging him to carry out his ideas.

Kirk Sutlive, former Southern newspaperman and now the director of public relations at the Savannah

mill, was called into the conference and he gave of his experience and talents to carry out Mr. Gray's idea.

Pictures Tell Story

Quite a number of photographs were taken. A few of the best are shown on these pages, indicating the way that Union Bag and Paper Corp. carried its message to its hundreds of employes. The house organ of the mill, *The Digester*, of which Mr. Sutlive, was editor, devoted several pages to the campaign and it was reported an obvious success at the mill.



WRONG WAY (left) and RIGHT WAY (right) TO LIFT A HEAVY OBJECT. A pipe shop crewman by starting to lift heavy pipe with arms alone, risks rupture, back injury, etc. L. M. REDMOND, "Safety Captain," demonstrates how it should be lifted—with the body doing the job.

EMPLOYEES "SAFETY CONSCIOUS"

At Powell River a Smile Carries a Serious Message



STEVE HATTERICK, Machinist at big Savannah bag factory, shows a good way to lose an eye by wearing his protective shield in wrong place. One small flick of metal from steel pin can put him in hospital.

largest integrated pulp and paper enterprise in one locality, is a producer of pulp, paper and board, multi-wall bags and retail store and specialty bags.

This company has recently launched an expansion program to increase its pulp output from 800 to 1,000 tons per day. This \$2,000,000 project includes erection of new pulp-washing building, water treating plant, boiler house and addition of a ninth fuel-fired boiler. It also will make 1,000 tons of finished products daily.

Just an indication of the size of the mill on the south shore of the Savannah River, which was visited by a PULP & PAPER INDUSTRY representative, are a few "statistics" which he saw—four big machines, three on paper and one on board; five barking drums, the nine boiler and recovery units; 15 8-ton digesters and about 150 machines making

Mr. Gray's Credo

Mr. Gray proposes this credo on safety for all the personnel of pulp and paper mills—for management as well as mill crews:

"1. A live employee is better than a dead one.

"2. A whole human body is better than a maimed or dismembered one.

"3. A full weekly pay check is better than one based on workmen's compensation.

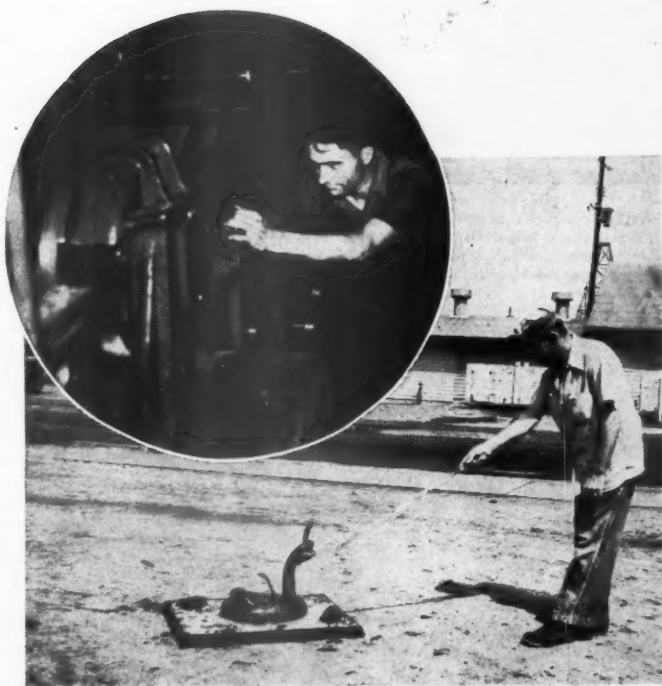
"Every word that we say and every deed that we do is in defense, and for the furtherance, of these three principles. We further believe:

"1. The realization of the above objectives may be obtained in an industrial plant only by full and complete acceptance on the part of the supervisor of full responsibility for the safety of each and every employee under his supervision.

"2. Full acceptance of responsibility on the part of the supervisor must be predicated on the delegation of that responsibility by top management.

"3. Top management must sincerely desire a safe organization and must place the conservation of life and limb of employees in its rightful place in which it takes precedence over all supervisory functions."

The Savannah mill, reputedly the



AS DANGEROUS AS PLAYING WITH A COILED RATTLER is chance taken by the man in inset, whose arm is too close to machine in operation.

G. A. REAVES, of Union Bag's Pulp Mill Recovery Room, fortunately for him, is toying with a stuffed diamond back rattler instead of a live one.

bags—some of them making 500 bags a minute.

It is a real problem to spread the gospel of safety among the wide-spread activities and numerous employees of such an organization, many of them handling intricate machinery which have all the latest safety devices and protective features but are still in no sense "children's toys."

Powell River's Methods

Just about as far across North America as it is possible to get from Savannah—all the way from southeastern U. S. to extreme western Canada—is another big pulp and paper company which has shown originality in its efforts to get across the lessons of safety to its employees.

Powell River Co., Powell River, B. C., also recently visited by a PULP & PAPER INDUSTRY editor, was observed to have used cartoons and humorous catch lines in signs put up on walls around its var-



R. W. GRAY, Safety Director, Union Bag & Paper Corp., who conceived the idea of giving Union Baggers their safety lessons with pictures of real life models.



JOHN JARIS, Adjuster in Grocery Dept., Bag Division, Union Bag & Paper Corp., is demonstrating a "one-track mind" in action—walking right by sign warning to look out for moving vehicles.

ious mills to get over maxims of safety.

This is an idea originated by John McIntyre, public relations executive of the company and formerly safety supervisor. Evan S. Pirie is now the safety supervisor. Powell River Co. has been fortunate in showing a substantial reduction in accident frequency in the past two years.

Mr. McIntyre's clever signs—deathly serious despite the laugh that is on the surface—really brought home safety to the many

employees of that company. He and Mr. Pirie, after him, have been great exponents of the gospel of making safety a personal thing to the employee.

"Point out to him that he is the one who is liable to get hurt, that he is the one who will suffer pain and lose at least one-third of his income even if he goes on workmen's compensation," said Mr. Pirie.

Mr. Pirie also has been a great advocate of cooperation and he stresses that safety is management's responsibility in the first place because unless management is "willing to realize this responsibility and act upon it, then no one else down the line will feel obligated to carry his share of the responsibility, either."

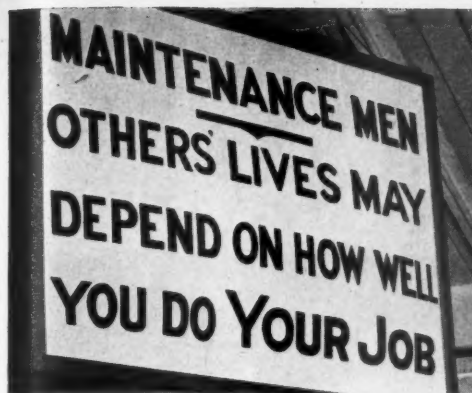
Powell River Co. actively carries out the theme of cooperation by having membership on its "safety



MISS EDITH MANSFIELD, of Union Bag Technical Staff, models what the "well dressed" female plant employee should wear. Turban prevents hair from catching in machinery; protects hair from dust. Coveralls permit free movement and have no frills to tangle with machines. Short sleeves are obvious advantage.



SAFETY BOOTSIES SAVE YOUR TOOTSIES. Here's the safety shoe shop at Union Bag & Paper Corp. mill, Savannah, Ga. Safety Director ROBERT W. GRAY stands in left background.



THESE SAFETY SIGNS at Powell River Co. are "attention-getters."

committees" include union men as well as management executives; foremen and superintendents as well as other employees.

Thus do two mills, far removed from each other, demonstrate how to make "safety" a "living" and really vital movement in their organizations.

The accompanying pictures show some of the striking posters displayed at various parts of the big British Columbia mill to emphasize the safety program.

Describing the company's effort in this connection, Evan S. Pirie, safety supervisor, writes PULP AND PAPER INDUSTRY:

"The large signs are approximately two feet by four feet and have appropriate wording to suit the location in which they are hung. The posters, when completed, are in red lettering and are ten inches by fourteen inches. The right and wrong posters are posed for by various employees and are well received and give the men a chance to participate in our safety and accident prevention work in a personal way.

"The setup we use for our plant safety committees is rather unusual in that we have three regional committees with about twenty members in each regional, which give a representative on each shift in each department."

Critical Pulp Shortages Still Face Mills

It may be safely stated today that the pulp crisis in the United States is over—or at least the worst of it—thanks to shipments of wood pulp arriving from Sweden. But in certain localities the troubles of mills are not entirely ended.

Converter mills near the Atlantic seaboard are seemingly better off than in other regions because they are getting the bulk of the Swedish pulp. But very little European pulp is going to mills west of the Alleghenies, according to information obtained by PULP & PAPER INDUSTRY in that field.

It is likely that some of these paper

mills will have serious pulp troubles for six months at least.

A new factor is the entry of some formerly self-sufficient mills in the pulp market, bidding for available supplies. For instance, one of the important producers in Virginia is now actively in the pulp market for the first time in its history.

As just another example, Champion Paper & Fibre Co., which has long been the outstanding producer of soda pulp in the United States, is now buying pulp in the market to meet its requirements.

Just at a time when the impetus given to coated book and magazine paper production has many mills evincing new interest in groundwood, there apparently is an unexpected shortage in that type of pulp.

Deliveries of European pulp will be largely halted from December to April or May during the freeze-up of the Baltic.

IMPORTS OF SWEDISH PULP

(V-E Day Through Oct. 25, 1945—First postwar shipment was June 25)

	Short Tons	Value	
		Dollars	
Unbleached ground-wood	11,913	\$	449,774
Bleached groundwood....	1,177		43,098
Unbleached sulphite	154,449		8,495,603
Bleached sulphite, rayon and special grades	3,483		295,783
Other bleached sulphite	30,777		2,289,831
Unbleached sulphate	125,741		7,588,478
Bleached sulphate	18,157		1,330,183
All soda pulp	39		2,119
Unclassified	1,644		100,554

Total (in 4 months of shipping)347,380 \$20,595,423
Data supplied by the U. S. Bureau of the Census.

Newsprint May Advance \$5 a Ton

A price increase of \$5 a ton on newsprint may result from a U. S. Office of Price Administration cost study now nearing completion.

Although OPA refuses to comment on the amount of the price increase which it may grant the industry, it is generally believed a \$5 a ton boost may be necessary to bring the industry's earnings up to the peacetime level.

N.Y. "Paper Week" Will Begin Feb. 25

"Paper Week" will be held in New York City next year with meetings scheduled to begin on Monday, Feb. 25.

With the hotel situation still extremely tight, pulp and paper industry executives who are planning to attend are already making their room reservations.

It looks like the February meetings are going to bring a record crowd, with groups anxious to make up for lost time during the war.

The American Paper & Pulp Assn., Paper Trade Association, National Council for Stream Improvement and other management and sales groups will schedule their meetings principally at the Waldorf-Astoria. TAPPI will again hold forth at the Commodore.

No Pulp From Norway Until Late Summer

Disturbed over a report that Norway would soon have some 100,000 tons of pulp available for the U. S., a New York representative of Norwegian mills hastened to say last month that the prospect is not so optimistic.

Because Norway's wood is cut in winter, the representative states, no wood will be available before spring. Sabotage slowdowns in the woods, against the Germans, reduced materially the amount of pulpwood at the mills. It will be the late summer of 1946 before the U. S. sees Norwegian pulp in appreciable quantity, the mill representative told the New York office of PULP & PAPER INDUSTRY.

Such delay in the Norwegian picture was predicted in the May, 1945, Review Number and subsequent issues of this publication.

McAllister Fatally Hurt In Fall In Home

C. J. McAllister, Oregon-California representative for Simonds-Worden-White Co., was fatally injured in a fall down a dark stairway in his Portland, Ore., home during the night of Oct. 11-12. Mr. McAllister is survived by his widow and his daughter, wife of Sgt. Jack Lacey, U. S. Army Air Corps.

Mr. McAllister was 50 years old. He was nine years with the Dayton, O., firm and prior to that had operated a logging camp among other enterprises.

VEIL LIFTED ON GERMAN WARTIME

No Important Advances Made In Yeast and Nitrating Pulp

At last the veil has been lifted from the German pulp and paper industry and the information concerning its technical and mechanical advances are available—or soon will be—to the North American and British industries.

After six years of silence and mystery, there is nothing so very startling to report. In due course, the U. S. Forest Products Laboratory at Madison, Wis., which sent a delegation of investigators into Germany, will issue some descriptions of technical processes which under national law will be available to all comers. Meanwhile, the investigators individually are permitted to discuss general observations although asked not to go into detail about processes.

Two of the group were identified with pulp and paper, namely:

Gilbert K. Dickerman, technical director, Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., who has been with that company 17 years and is a Princeton alumnus.

John McGovern, pulp and paper division, Forest Products Laboratory, Madison, and whose studies of pulping qualities of less commonly used woods in this country were presented to the industry through TAPPI and this magazine.

The group, headed by C. P. Winslow, director at Madison, was based in London, and was abroad about four months. They were just one division of some 250 investigators from various U. S. industries who followed the armies into Germany. They wore badges marked "Scientific Consultant."

Besides this force, the British sent similar groups into Germany, as did the Canadians. Since Britain and Germany were highly competitive before the war in glassine, grease-proof and condenser paper fields, the British investigators in this industry naturally did a very thorough job in ferreting out all the information they could about these branches of the German industry.

In most regions, the German pulp and paper makers cooperated fully and gave all available information to the investigators. The Germans have been anxious to get their mills operating again and reasoned that they would benefit by cooperation,

GILBERT K. DICKERMAN (left), Technical Director, Wisconsin Water Power & Paper Co., Wisconsin Rapids, Wis., and DR. EDWARD G. LOCKE, U. S. Forest Experiment Station, Portland, Ore., who inspected German pulp and paper mills for Uncle Sam and U. S. industry.



thus getting a favorable report from the investigators.

Although pulp and paper mills in Germany were not heavily damaged during the war—the bombers concentrating instead on aircraft, ball bearing and synthetic fuel plants—slave labor and looting soldiers wrecked a lot of places after V-E Day. For example, every meter in the big Asschaffenberg mill at Stockstadt, Germany, had a bullet hole through it. Laboratories were torn to pieces. Where technical files were destroyed, it was done often by either slave labor or the Germans themselves. In many mills, however, zealous GI's or British Tommies, on the hunt for high-powered lenses, cameras or other fine equipment, had left their mark.

On the Rhine at Mannheim, one of the large Waldorf mills (an organization which might be compared to International Paper Co. in its scope) was damaged by artillery fire. The main research laboratory of the company, at Mannheim, was a complete wreck.

The Technical High School at Darmstadt—alma mater of many papermakers the world over, a goodly number now in various North American mills—was thoroughly wrecked. This town, site of a vital war industry, was generally blasted. Dr. Walter Brecht, wartime head of the pulp and paper section of the Technical High School, was interviewed by the investigators.

Yet, in the same city, the pulp and paper laboratory of Dr. G.

Jayme, extensively equipped during the war with latest devices for studies ranging from rayon to all types of papers, escaped any serious damage.

However, the general physical condition of mills and industry institutions was found to be good and it was soon evident that in the desperate struggle for world dominion, Germany had shoved the paper-making industry into the background and not given it any assistance or encouragement for important technical advances.

Briefly, this is what the investigators discovered:

1. North American mills, on the whole, make just as good products as the Germans and have pretty much the same equipment.

2. Where the Germans may have slightly superior products, as in some finer grades, it was where they were willing to operate machines at an extremely slow rate and started with good pulp and good water. For example, at Gernsbach, seven machines turned out less than one ton each per day of cigaret and condenser paper.

3. Good technique—rather than any superiority of equipment or process—was the dominant characteristic of the best mills.

4. A great deal of fine twisting paper was made with kraft pulp and used as twine for fabrics, for mail bags, grocery or light net bags, but it was not any better than the kind that can be made in the U. S.

5. Despite the recent widespread

PULP AND PAPER DEVELOPMENTS

But New Resin for Creped Paper Is Found Across the Rhine

publicity given to a U. S. Foreign Economic Administration release which suggested that Germany was doing a better nitrating pulp job with unbleached pulp than with purified pulp, this statement is not confirmed. All of Germany's nitro-cellulose pulp was made from sulfite pulp produced from beechwood. Nearly all of this was purified and bleached in the same manner as in this country, but a small amount was nitrated in the unbleached form. However, the purified pulp was the preferred raw material, as was the case in the U. S. The FEA announcement had said that a more stable and superior nitrating pulp was made in Germany from an inferior wood.

6. The making of a protein yeast from the sugars of waste sulfite liquor in Germany, likewise, has apparently progressed not appreciably further from a practical standpoint than the similar studies now being made at the Institute of Paper Chemistry, in Appleton, Wis., and by the Weyerhaeuser Timber Co., pulp research department at Longview, Wash. The FEA had broadcast that unique German yeast processes in the pulp and paper field had been discovered. Actually, the protein yeast from sulfite liquor in Germany was used almost exclusively to feed army horses and the German mills seemed just about as far away as the Americans from answers to the major problems—whether the farmers want it for cattle feed, its suitability for that purpose, and how much farmers would pay for it.

7. A paper wet strength treatment with a new resin, polyethyleneimine, did look very good to the investigators. Depending on the relative continued importance of high wet strengths in peace time, this German development may be one of the few really useful discoveries of the investigation. Four tons per month were being made and the resin, as an impregnant, did improve wet strength and scuff resistance of soft crepe paper, while allowing it to retain its absorbent qualities. Towels and bandages were made with this resin. It looked like a higher wet strength than developed in this country, had been found, but this had been spent in preliminary work,

Wisconsin Rapids Men Meet in Germany

It was a "small world" for two men from Wisconsin Rapids who met recently in the vicinity of Salzburg, South Germany.

One was Gilbert K. Dickerman, technical director of Consolidated Water Power & Paper Co., who was serving as a member of an investigating mission for the U. S. Technical Industrial Intelligence Committee.

The other was James E. McCourt, Pvt. 1st Class, Co. C, 22nd Infantry, 42nd Division, U. S. Army, who is the son of Earl McCourt, coordinator of production and sales for the Consolidated Company, and Mrs. McCourt.

Gil Dickerman, on the way to visit a paper mill, noted a sign saying he was at the headquarters of the unit in which young McCourt was, and still is, serving. It wasn't long before he was face to face with Jim.

Jim is still "over there."

was yet to be confirmed.

8. Although a great deal of money high speed, on-the-machine paper coating had not yet been put into operation in Germany.

Many German mills, shut down at the war's end, are returning to operation. There is no doubt in the minds of the investigators that these mills can be returned to production as rapidly as transport and coal are available to them.

Most had operated very well during the war but prior to closing weeks of the war, there had been previous widespread shutdowns in December, 1944, and January, 1945, due to lack of fuel. The chlorine shortage apparently was not as serious as in the United States.

Plenty of pulp was being imported from Sweden and the mills will again look to that source. Pulpwood came largely from Finland and Norway. The Nazi policy, however, had been to consume and deplete the wood resources of conquered countries, while preserving its own. Germany may now have its own timber, in good condition, to use, even though wood from Finland and other eastern countries may be expected to go principally to Russian users.

The Germans since 1941 limited the production of pulp for chemical end uses, such as rayon and nitro-cellulose, to the use of only one kind of wood—"buche" or beechwood, as

we know it.

The "fichte," which is similar to our spruce, was reserved for paper and paperboard, where long-fibered strength was necessary.

Mr. Dickerman spent six weeks in Germany and went to about ten pulp, paper and rayon pulp mills. Mr. McGovern remained east of the Rhine for a couple of weeks longer. Mr. Dickerman had an opportunity to really see Paris when he had a mild attack of jaundice in that city and was confined to an army hospital nights, with freedom to circulate in the famous City of Light during large parts of each day.

The impression the delegation obtained in Britain was that that country's pulp and paper industry will make every effort to regain its important export business in paper. This may mean a long period of reduced domestic consumption, which was still being held at about 25% of pre-war use. Thus, all the increased production the British are able to get out of their mills, will go into the export field.

Ferguson Confirms Plan for Tacoma Paper Mill

Plans for the addition of a paper plant to the kraft pulp mill of St. Regis Paper Co. at Tacoma, Wash., were disclosed by President Roy Ferguson, in a recent address before the New York Society of Security Analysts.

It had been generally understood for a long time that a paper machine would be installed at this mill, which produces about 300 tons of pulp daily, half bleached and half unbleached. However, as reported in this magazine, the company plans had been only tentative for a long time because of uncertainty of general operating conditions after the war.

Mr. Ferguson, in making the first official pronouncement of the program to make paper as well as pulp in Tacoma, said the additions to the mill would make possible conversion of about 50 per cent of the pulp to paper during the coming year. This will provide paper for the company's west coast bag plants.

Kuhn With U. S. Ordnance Dept.

Capt. Robert Kuhn, U. S. Ordnance Dept., formerly with the St. Regis Paper Co., Kraft Pulp Div., in Tacoma, Wash., has been located at the Edgewood Arsenal in Maryland since January, 1943. He has been engaged in the manufacturing of ordnance.

NEW IDEAS ADVANCED BY SOUTHERN SUPERINTENDENTS

Lynchburg and Bogalusa conventions bring forth discussions of new equipment and problems still unsolved. Railroads could help mills by devising less costly pulpwood handling. New washing and bleaching equipment is seen.

There is no better place to learn the trend of thinking in the Southern pulp and paper industry than at the two annual fall conventions of the Southern and Southeastern superintendents.

What's new in equipment in the South? What are problems facing management in the South?

These questions were amply answered in the meetings which the two superintendents' associations held during the recent weeks in Lynchburg, Va., and Bogalusa, La. As usual, most equipment company representatives in that region attended both meetings and they joined the superintendents in discussions wherever they could contribute to the solution of any prob-

lems which were brought up.

Here are some of the highlights of the Southern Division meeting at Bogalusa, Nov. 1-2, and following this article is also a brief report on the Lynchburg sessions, both of which were attended by PULP & PAPER INDUSTRY editors.

Several old-timers, who have been making Southern meetings for years, agreed that the outstanding performance at Bogalusa was an alert, swift-moving round table discussion on the final day.

It was really a personal triumph for Alfred Suter, the stocky, Swiss-born general superintendent of Gaylord Container Corp., who did a masterful job of presiding over the meeting. His quick humor and well-timed stimulating comments kept

the round table arguments going at a merry pace.

Round Table Topics

One of the first things decided at this session was that Southern mills or their superintendents—with the assistance of traffic departments—should look into the matter of costs of loading and unloading closed and open box-cars of pulpwood. It was suggested that better cooperation might be obtained from the railroads. Open railroad cars are not permitted to go through cities and towns and handling of wood in closed cars is costly. One suggestion was that railroads make openings in ends of cars so that the wood need not be carried to the center door. It was evident that here is a good

AT BOGALUSA, LA., Nov. 1 and 2:

The Women's Entertainment Committee consisted of the two ladies on the left: MRS. DICK MURRAY (above), wife of Gaylord Container's Pulp Paper Mill Supt., and MRS. C. W. GOODYEAR, Jr. (below), daughter-in-law of the President of Gaylord Container Corp.

Above in the center are the golf tournament judges and a couple of kibitzers (l. to r.): C. W. GAYLORD, JR.; R. G. DUGUE, Murray-Baker-Frederick Inc., New Orleans; C. O. KINGSBURY, Solvay Sales Corp., New Orleans, and HORACE BAKER, F. M. Baker Co., New Orleans.

Lower center group (l. to r.): M. H. BOYCE, DuPont Co., Chicago; GEORGE HARDAKER, Lockport Felt Co., Newfane, N. Y.; L. M. CHAMPAGNE, Asst. Paper Mill Supt., Gulf States Paper Co., Tuscaloosa, Ala.; and W. J. BROWN, Asst Plant Supt., Brunswick Pulp & Paper Co., Brunswick, Ga.

Right: MRS. W. W. HENDERSON, holding the bag she won with top bridge score. Mrs. H. is wife of Bill Henderson, veteran manufacturers' representative in South who has opened new headquarters at (Box 206) Pensacola, Fla.



LEADERS AND PARTICIPANTS IN THE SOUTHERN SUPERINTENDENTS, Fall Convention at Bogalusa, La.

Top row (left to right): NORMAN U. DICKSON, Supt., National Container Corp., Jacksonville, Fla., who was elected new Chairman of Southern Supts., for 1945-46; ALFRED SUTER, Gen. Supt., Gaylord Container Corp., Bogalusa, who gave paper on brown stock washing and, the next day, proved to be one of the most adroit general discussion leaders the superintendents have ever had in action anywhere in the country—everyone agreed he did a beautiful job as a moderator; and COOPER RATLIFF, Asst. Tech. Director, Gaylord Container Corp., who gave a paper on Bogalusa's versatile bleach plant.

A fast golf foursome—one of the best in Bogalusa tourney—was the middle group (l. to r.): GEO. HERMAN, Vice Pres., Herman Mfg. Co., Lancaster, O.; DICK MURRAY, Pulp-Paper Mill Supt., Container Corp., who completed his term as Chairman of Southern Supts.; BUNN BEASLEY, Gen. Supt. Brown Paper Mill Co., West Monroe, La., whose golf score won traveling bag, and PAUL FOSTER, Treas., Williams-Gray Co., Chicago. Lower group (l. to r.): WALTER L. GLASS, F. C. Huyck & Sons, Albany, N. Y., who brought his movies; GENE BECHARD, Appleton Machine Co. and others, Atlanta, Ga.; RAY ALMAND, Paper Mill Supt., and TOM JOHNSON, Pulp Mill Supt., both of Union Bag & Paper Corp., Savannah, Ga.

opportunity for the railroads to perform a real service to the pulp and paper mills.

A new cable and button conveyor for wood and other mechanical means for wood-handling were discussed.

Hydraulic log or smallwood bark-ing, now being introduced in the northern mills, seemed unsuited for southern needs. It was pointed out that stream-barking would have to be on a lineal foot basis, which would be very unreliable as to capacity in the South where the wood is small and huge quantities are used.

Multi-knife chipping was introduced in one Southern mill, where, according to the speaker, it was expected to do away with screens. It meant frequent grinding of knives was necessary. But this mill was able to reduce its crew taking rejects from knotters back to the digesters by one-half. One of these chippers was reported to have produced 400 tons of chips a day.

Increased use of instruments and controls in cooking and in measuring liquors was advocated as a means of enabling mills to meet more rigorous competition, to produce a cleaner pulp, etc. The use of Foxboro controls on digesters was discussed and it was generally agreed that, although some problems need to be still worked out in some phases of control work, the principle of automatic, push-button pulp and paper operation is going to be



carried into nearly all departments. In discussing paper machines, however, it was conceded that where top speeds are consistently used, hydrometers could not be successfully applied as they require a margin between actual speed and top capacity. One challenging thought for the equipment companies was that the day may come when machines reach a speed where present-day suction rolls fail to do the job they are made for. However, it was stated that this problem was unlikely to arise until some such fantastic speed as 3,000 feet per minute were reached. A solution might be to take more water in bigger and deeper vat boxes.

Washing and Bleaching

At the first day's meeting in Bogaluso, Mr. Suter gave a paper in which he discussed the advantages of four-stage washing over a two-stage system for Southern kraft pulp. These advantages, as outlined by him, were:

1. Pulp can be washed to a lower salt cake content.
2. This is done with a reasonable dilution of water to the black liquor to the evaporator.
3. It is done with a completely closed and balanced system.

In his discourse, he said he was describing washing equipment installed in the Gaylord plant in 1941



CANDIDS SNAPPED AT BOGALUSA, LA., CONVENTION:

Top row (left to right): D. C. METCALF, formerly of Brompton mill in Canada and now of Brown Paper Mill Co., Monroe, La., and a former Chairman of the Southern Supts.; L. A. THOMPSON, Res. Mgr., Hercules Powder Co., Marrero, La.; ANDREW JONES, National Aniline Div. of Allied Chem. & Dye Corp.; J. H. NOBLE, Improved Paper Machinery Corp., New York; CARLETON CLARK, of Clark & Vicario Co., New York; DICK TEMPLE, Downingtown Mfg. Co., Downingtown, Pa., and C. P. KIRCHEN, American Cyanamid & Chem. Corp., Mobile, Ala.

Lower row: JERRY STRASSER, Stein-Hall & Co.; A. A. HENTSCHEL, Felt Supt., Flintkote Co., New Orleans; R. D. SMITH, Stein-Hall, New Orleans; PAUL BORONOW, Valley Iron Works, Appleton, Wis.; BUNN BEASLEY, Gen. Supt., Brown Paper Mill Co., Monroe, La., and BRUCE MARTIN, recently promoted to Gen. Supt. of Pulp and Paper Div., Union Bag & Paper Corp., Savannah, Ga.

and under development since that date.

One other paper given at this meeting was a discussion of the seven-stage bleaching equipment jointly developed by Gaylord and the Pulp Bleaching Co., and designed by Raymond P. Hill, head of that company. This paper was given by F. C. Ratliff, assistant technical director at Gaylord.

He told of how the mill staff adapted the plant to making nitrating pulp. Here is a plant of evident great flexibility for Mr. Ratliff mentioned that it had made pine bleached and semi-bleached, hardwood bleached and nitrating pulps.

The principal problem in this new type plant, as he outlined it, was pulp and water handling. The obtaining of design consistency in certain of the reactors, he said, was an operations problem.

As might be expected when the superintendents and affiliates made a tour of the Gaylord paper mill, bag and box plants as the guests of the management, considerable attention was given to the brown stock washing and bleaching equipment. The "Big Rebel"—a Beloit four-drainer which is the most recent new machine installed anywhere on the continent—was also a high point of the mill tour.

Dick Murray, superintendent of the pulp and paper mill, Gaylord

Container Corp., presided at the superintendents' sessions, completing his term as Chairman. He was succeeded by Norman V. Dickson, superintendent, National Container Corp., Jacksonville, and E. A. Newman, paper superintendent, Crossett Industries, Crossett, Ark., moved up to first vice chairman, J. R. Almand, Union Bag, 2nd vice chairman; F. Jensen, H & W Co., 3rd vice chairman, and R. R. Stevens, Nat. Container, sec'y.-treas.

Vertrees Young, vice-president and manager at Gaylord, welcomed the gathering on the first day. At the banquet the principal speaker was Clayton Rand, Gulfport, Miss., editor, who made a fervent plea for passive resistance to any government bureau decrees which were contrary to "principles of democracy."

At the banquet A. D. Levert, assistant to Mr. Suter, was chairman, and Charles W. Goodyear, Jr., son of the president of Gaylord, gave out the golf prizes. A. F. Downey, of Florida Pulp & Paper Co., won the championship golf trophy and a suitcase. Another traveling bag went to Bunn Beasley, general supt., Brown Paper Mill Co., Monroe, La., for his golf net of 67—a prize, incidentally, which he won on his birthday. R. E. Bergstrom, of Swenson Evaporator Co., won the high score prize and the sympathy of all present.

Attendance:

R. P. Abercrombie, Cheney Bigelow, Springfield, Mass.; Ray W. Alleman, Brown Paper Mill, Monroe, La.; J. R. Almand, Union Bag & Paper Co., Savannah; Horace Baker, Frederic & Baker, Inc., New Orleans; Bunn Beasley, Brown Paper Mill, Monroe; Gene Bechard, Atlanta; R. E. Bergstrom, Swenson Evaporator Co., Harvey, Ill.; A. W. Betz, Gulf Engineering Co., New Orleans; J. A. Birkhead, Lunkenheimer Co., Cincinnati.

J. E. Bounds, St. Joe Paper Co., Port St. Joe, Fla.; M. H. Boyce, Dupont Co., Chicago; W. J. Brown, Brunswick Pulp & Paper Co., Brunswick, Ga.; Wm. A. Cary, National Container Corp., Jacksonville, Fla.; L. M. Champagne, Gulf States Paper Co., Tuscaloosa, Ala.; John Chandler, Bristol Co., Atlanta; Banks Christian, Walworth Co., Mobile; G. D. Cough, Harbison & Walker Refractories, Birmingham, Ala.; H. F. Coleman, Grinnell Co., New Orleans; Jack W. Corriston, E. J. Lavino Co., Philadelphia; George W. Craigie, Supts. Association, New York.

W. R. Crow, Weeks Supply Co., Monroe; J. B. Davidson, Mechanical Equipment Co., New Orleans; V. D. Davis, Brown Paper Mill, Monroe; J. O. Devlin, Combustion Engineering Co., Houston; Norman U. Dickson, National Container Corp., Jacksonville; A. F. Downey, Florida Pulp & Paper Co., Pensacola; F. W. Drake, Lockport Felt Co., Newfane, N. Y.; Bob Dugue, New Orleans; Paul Foster, Williams Gray Co., Chicago; E. S. Gannin, R. J. Tricon Co., New Orleans.

O. W. Getchel, Brown Paper Mill, Monroe; Walter L. Glass, F. C. Huyck & Sons, Albany, N. Y.; W. E. Greene, W. E. Greene Corp., New York; George W. Hardaker, Lockport Felt Co., Newfane, N. Y.; S. L. Hayes, Ciba Co., Inc., Charlotte, N. C.; W. W. Henderson, Henderson & Sons, Pensacola; A. A. Hentschel,



On left, a group of representatives of SWENSON EVAPORATOR CO., Harvey, Ill., who were interested in the brown stock washing paper given at the meeting in Bogalusa. They are (left to right): R. E. BERGSTROM, J. E. KEARNEY and J. R. LIENTZ, chemical engineers from the Illinois firm, and JACK WILCOX, sales engineer from Electric Steel Foundry Co., Portland, Ore., which has a sales agreement with Swenson.

On right: GEORGE W. CRAIGIE, Secy-Treas., American Pulp & Paper Mill Supts. Assn., New York. Seated behind him are JACK MAZER (on left), one of top executives of Hudson Pulp & Paper Corp., who registered from Palatka, Fla., where the company is reported planning to build a mill; and (on right), W. E. GREENE, of Greene Corp., New York.

Flintkote Co., New Orleans; G. A. Hermann, Hermann Mfg. Co., Lancaster, Ohio; Geo. W. Hill, Westinghouse Elec. Corp., New Orleans; J. B. Homan, A. E. Staley Co., Mobile; R. I. Hoskins, Manhattan Rubber Co., New Orleans; W. F. Hughes, Peerless Supply Co., Shreveport, La.

Frank A. Jensen, Hollingsworth & Whitney Co., Mobile; Lawrence Johnson, R. T. Vanderbilt Co., Norwalk, Conn.; T. C. Johnson, Union Bag & Paper Co., Savannah; H. D. Jones, Manhattan Rubber Co., Passaic, N. J.; J. E. Kearney, Swenson Evaporator Co., Harvey, Ill.; L. H. Kelley, Corn Products Co., Birmingham; T. G. Kelley, Mechanical Equipment Co., Houston; R. T. Kidde, Hills McCanna Co., Chicago; J. F. Kimball, T. C. & I. R. R. Co., Birmingham; C. O. Kingsbury, Solvay Sales Corp., New Orleans; B. S. Kier, Gulf Engineer Co., Mobile.

C. P. Kirchen, American Cyanamid Co., Charlotte; W. J. Krebs, Pulp & Paper Industry, New Orleans; D. B. Lay, St. Joe Paper Co., Port St. Joe, Fla.; James Leintz, Swenson Evaporator Co., Harvey, Ill.; Bruce Martin, Union Bag & Paper Co., Savannah; Jack Mazer, Hudson Pulp & Paper Co., Palatka, Fla.; D. C. Metcalf, Brown Paper Mill, Monroe; Joe Moss, Bogalusa Scrap Co., Bogalusa; Ralph W. Mueller, T. C. & I. R. R. Co., Birmingham; A. J. Navarre, Orange Pulp & Paper Mill, Orange, Texas; J. E. Nelson, Weeks Supply Co., Monroe; E. A. Newman, Crossett Paper Co., Crossett; H. D. Nickle, Combustion Engineering Co., New York; J. H. Noble, Improved Paper Machinery Corp., New York.

J. B. Peebles, General Electric Co., New Orleans; S. T. Penick, Link Belt Co., Dallas; Bill Putney, Philadelphia Felt Co., Frankfort, Pa.; Joe L. Richardson, Gulf States Paper Co., Tuscaloosa; L. E. Savage, Celotex Co., New Orleans; J. W. Sears, Link Belt Co., Dallas; C. A. Shoudy, West Virginia Pulp & Paper Co., Charleston; C. Simoneaux, Celotex Paper Co., Marrero, La.; R. D. Smith, Stein-Hall & Co., New Orleans; R. C. Stewart, Shartle Bros., Middletown, Ohio; Marshall Stickel, Lunkenheimer Co., Cincinnati; J. P. Strasser, Stein-Hall & Co., New York; Bruce Suttle, Herty Foundation, Savannah; Frank Thomas, Leslie Co., Mobile.

L. A. Thompson, Hercules Powder Co., Marrero, La.; R. J. Tricon, R. J. Tricon Co., New Orleans; J. E. Whitfield, Brown

Paper Mill, Monroe; Roland Wilber, Crossett Lumber Co., Crossett; J. M. Wilcox, Electric Steel Foundry Co., Portland, Ore.; C. E. Wilds, Brown Paper Mill, Monroe; George L. Witham, Ciba Co., Inc., Charlotte; H. I. Wooden, St. Joe Paper Co., Port St. Joe, Fla.; W. S. Yunker, Foxboro Co., Foxboro, Mass.

The delegation from Gaylord Container Corp., Bogalusa, were C. H. Allen, F. E. Augustine, Gus Bienvonn, Holland Blount, J. A. Box, Jack Byrd, E. L. Burruss, J. L. Clements, J. S. Cocke, E. L. Cowan, Redus Cruthirds, P. M. Garrison, C. W. Goodyear, A. R. Haarala, Emile Haarala, V. Knight, A. D. Levert, I. A. Magnitsky, George Mason.

J. M. Murray, B. B. Pierce, F. C. Ratliff, Roy Scroggs, S. F. Simmons, Alfred Simm, Carley Smith, Emery Smith, Adrian Strain, Alfred Suter, John Tiehaara, D. M. Wadsworth, Louis M. Wadsworth and Vertrees Young.

One Rosyskie Son in School, Other One Runs Machine

Elwin Rosyskie, son of Albert G. Rosyskie, assistant manager of the Camden, Ark., mill of Southern Kraft Div., International Paper Co., is in his first year at Louisiana Institute of Technology, Ruston, La., and was home on his first term vacation in late October. Elwin, who worked in the engineering department at Camden, is taking an engineering course.

At the Georgetown, S. C., mill of Southern Kraft, his first cousin, Chester Rosyskie, is running a machine. His father, Adam Rosyskie, was recently transferred from Moss Point, La., to Georgetown as manager.

The latter relieved Carley Crain as Georgetown manager, but Mr. Crain continues as coordinator of all Southern Kraft mills, with headquarters in Georgetown.

AT BOGALUSA MEETING:

Top row (l. to r.): GEORGE WITHAM, Ciba Chem. Co.; J. B. HOMAN, A. E. Staley Co., Mobile, who formerly was on top staff at Union Bag and, later, St. Regis mill in Tacoma, Wash.; and O. W. GETCHEL, Paper Mill Supt., Brown Paper Mill Co., formerly a Brompton man.

Middle row: H. D. NICKLE, Combustion Engineering Co., New York; G. B. COBAUGH, Harbeson & Walker Co., New Orleans, and J. O. DEVLIN, Combustion Engineering, Houston, Tex.

Lower row: M. A. HAWKINS, Stanley Works, New Orleans; BRUCE SUTTLE, Mgr., Herty Foundation, Savannah, Ga., and R. J. TRICON, R. J. Tricon Co., New Orleans.





LEONARD GROWDEN, Mead Corporation, Lynchburg, first vice-chairman of 1945 Superintendents Assn., elected chairman for 1946.

A string of Chesapeake and Ohio coal cars jumped the track in the early morning hours of October 26th and somewhat delayed the proceedings of the Fall meeting of the Southeastern Division of the American Pulp and Paper Mills Superintendents Association at Lynchburg, Va. But the meaty program was by no means derailed. Under the able chairmanship of James Hall, Champion Paper & Fibre Co., an instructive and fast-moving meeting was held at the Hotel Virginian on the 26th and 27th, with golf and a banquet and dancing thrown in for good measure.

Chief interest centered around the diffibrator-chemi-pulper of which there are several new installations in the South, and a paper on "The Asplund Defibrator-Chemi-Pulper" by D. M. Shapleigh of Paper and Industrial Appliances, Inc., drew a large audience and a lively discussion. Another star in the technical side of the program was "Beating Without Beaters" by R. F. Vokes,

Southeastern Pulp and Paper Mill Superintendents Hold Fall Meeting

Dilts Machine Works, who augmented his paper with motion pictures and projected stills. "New Developments on Fourdrinier and Cylinder Machines" was read by Samuel M. Bratton, Pusey and Jones Corp., and was also the subject of considerable discussion.

Those who did not wish to play golf were toured through the Lynchburg mill of The Mead Corporation, while the sightseeing for the ladies was devoted to the Elks National Home, Bedford, Va.

The arrangement committee for the Fall meeting, which drew 175 or more at its peak session, was comprised of Leonard Growden, Wistar M. Heald, A. T. Taylor, John Sale, and W. H. Brydges. For the ladies it was Mrs. Leonard Growdon, Mrs. Allan Muir, Mrs. A. T. Taylor, and Mrs. W. H. Brydges.

Mr. Growden, of Mead, will lead the Southeastern division in 1946 as chairman. First vice-chairman is A. N. Schultz, Camp Manufacturing Company, Inc., Franklin, Va.; and second vice-chairman is Harry J. Kruse, Albemarle Paper Mfg. Co., Richmond, Va. Carl L. Welte, Champion Paper and Fibre Co., Canton, N. C., was re-elected secretary-treasurer.

Those in attendance were:

F. W. Drake, Lockport Felt Co.; Harry W. Deffew, Standard Paper Mfg. Co.; Mrs. Harry W. Deffew; J. A. Inge, Albemarle Paper Mfg. Co.; Mrs. J. A. Inge; E. W. Crist, Hummel-Ross Fibre Co.; J. W. Morris, Hummel-Ross Fibre Co.; J. L. Cabeness, Hummel-Ross Fibre Co.;

A. L. Falls, Hummel-Ross Fibre Co.; G. R. Lennert, Hummel-Ross Fibre Co.; G. A. Ritter, Paper and Industrial Appliances, Inc.; U. G. Crook, Standard Oil Co.

Jerry Strasser, Stein-Hall Co.; H. E. Wehr, The Mead Corp.; Mrs. H. E. Wehr; G. H. Detwiler, Heller & Merz Dept., Calco Chem. Co.; Cloyd B. Richardson, The Mead Corp.; Ward Harrison, Ecusta Paper Corp.; Mrs. Ward Harrison; B. W. Dean, E. D. Jones Co.; M. W. Ramsey, Dicalite Co.; Bruce P. Ellen, Oliver United Filters, Inc.; C. L. Crosby, Allis Chalmers Mfg. Co.; R. J. Yurkenin, Allis Chalmers Mfg. Co.; R. W. Polleys, Shartle Brothers Machine Co.; J. W. Burke, Hercules Powder Co.; Jack B. Button, American Cyanamid & Chemical Co.; R. S. Meade, American Cyanamid & Chemical Co.; W. A. Robertson, Champion Paper & Fibre Co.; Mrs. W. A. Robertson; John Cornell, Paper Mill News.

G. W. Roberts, Socony Vacuum Oil Co.; Walter Clifford, Penick & Ford; Mrs. Walter Clifford; L. R. Growdon, The Mead Corp.; V. K. Shannon, The Mead Corp.; Mrs. V. K. Shannon; E. E. Tweed, Stein-Hall Co.; Mrs. E. E. Tweed; C. T. Lassiter, Penick & Ford; L. W. MacDonald, Socony Vacuum Oil Co.; R. D. Cross, Socony Vacuum Oil Co.; E. B. Fleener, Socony Vacuum Oil Co.; George W. Hardaker, Lockport Felt Co.; H. L. Roberts, Sinclair Oil Co.; Mrs. H. L. Roberts.

W. B. Younger, The Mead Corp.; Mrs. W. B. Younger; Hank Jones, William Cabbie Co., Manhattan Rubber Company; John W. Noble, Improved Paper Machinery Co.; Vincent Waters, Southern Pulp & Paper Journal; James Hardin, Champion Paper & Fibre Co.; H. D. Goolsby, Champion Paper & Fibre Co.; John Schubert, Solvay Process Co.; H. E. Ingalls, Bedford Pulp & Paper Co.; Mrs. H. E. Ingalls; J. W. Raines, Lindsay Wire Weaving Co.; O. F. Carter, The Mead Corp.; J. C. Huskey, The Mead Corp.; R. F. Bennett, Ecusta Paper Corp.; Mrs. R. F. Bennett; R. C. Bullock, Ecusta Paper Corp.

Mrs. R. C. Bullock; W. S. Rooney, Albany Felt Co.; W. P. Guenther, The Mead Corp.; Mrs. W. P. Guenther; J. C. Dieffenderfer, Hercules Powder Co.; James Hall, Champion Paper & Fibre Co.; Carl T. Welte, Champion Paper & Fibre Co.; Richard Temple, Downingtown Mfg. Co.; Nard Jones, Pulp & Paper Industry; Mrs. Nard Jones; Wm. T. Fraser, Simonds Saw & Steel Co.

R. H. Brook, Jr., Simonds Saw & Steel Co.; R. A. Gilchrest, Simonds Saw & Steel Co.; Alan R. Boyd, F. C. Huyck & Sons; Harry Hulmes, U. S. Rubber Co.; Erik Zimmerman, Chesapeake Corp.; A. M. Schultz, Camp Mfg. Co.; J. A. Staidl, Camp Mfg. Co.; A. T. Taylor, Bedford Pulp & Paper Co.; Mrs. A. T. Taylor; W. H. Brydges, Bedford Pulp & Paper Co.; Mrs. W. H. Brydges; L. G. Durant, Paper & Industrial Appliances, Inc.; R. L. Eminger, Miamisburg, Ohio; Mrs. R. L. Eminger; G. W. Craigie, American Pulp & Paper Assn.; Samuel M. Bratton, Pusey & Jones Corp.; Braxton Ryan, Asten-Hill Mfg. Co.

Carlo Vicario, Nash Engineering Co.;

(See bottom of next column, Page 29)

Other officers for 1946 (left to right): A. N. SCHULTZ, Camp Mfg. Co., Franklin, Va., first vice-chairman; HARRY J. KRUSE, Albemarle Paper Mfg. Co., Richmond, Va., second vice-chairman; and CARL WELTE, Champion Paper and Fibre Co., Canton, N. C., re-elected secretary-treasurer.



Superintendents Meet at York, Foresee Big Future for Industry

Plans for modernization and new construction of many mills was the No. 1 subject for those attending the Pennsylvania-New Jersey-Delaware Division of the American Pulp and Paper Mill Superintendents' meeting at the Yorktowne Hotel, York, Pa., early in October. The first postwar meeting of the group, under the chairmanship of Arthur W. Redlin, was reflective of enthusiasm for the future of the industry and its place in the new world.

The ninth of the divisions of the national association (Pacific Coast was the tenth) the "Penn-N. J.-Del." group has long been one of the most active. Records at headquarters indicate it was organized on February 6, 1926, in Philadelphia with 44 members—in contrast to its present 104 members. The October meeting at York was attended by more than 150 members and industrial affiliates.

The original officers of the division were J. G. Ramsey, chairman, Dill and Collins; T. H. Martin, Hammersley Manufacturing Co.; J. W. Outerson, Paterson Parchment Paper Co.; John A. Bowen, Hammermill Paper Co., vice chairman; and O. V. Yates, secretary. The post of secretary-treasurer in charge was very soon taken over by Mrs. Alice R. Dow, well known to every member and affiliate, who has held the post for many years and possesses a plaque in recognition of her services.

A glowing picture of industry expansion and modernization was presented in a talk by John Cornell at the Saturday session on Oct. 6 which followed golf, the industrial affiliates' cocktail party, and visits to the Schmidt and Ault mill and the P. H. Glatfelter Co., which is modernizing two of its paper machines.

H. A. Lips, of the paper laboratory dyestuff department of Du Pont, read a paper on "Coloring of Paper and Their Fastness" and at the luncheon on Saturday "Fitting the Employee into the Job Today" was the topic of John V. Hanney

of the Bengt Associates, Chicago. E. H. Gould, chief engineer for Socony Vacuum, exhibited a movie on lubrication.

The 1945-46 officers of the division are Jesse Good, chairman; Howard H. Street, National Vulcanized Fibre, first vice chairman; James Traill, Jr., W. C. Hamilton & Sons, second vice chairman; Philip Baker, Schmidt & Ault, third vice chairman; and Mrs. Alice Dow, secretary, re-elected.

Henderson and Son Start on Tour of Mills

For W. W. Henderson, who has established a new engineering and sales company in the South to be known as W. W. Henderson & Sons, the 4th of November was a red letter day.

The first of his three sons to join him in the business, Major W. W. Henderson, Jr., of U. S. Army Air Force, started on that day with his father on a tour of Southern mills lying west of their new headquarters, (Box 206) Pensacola, Fla. They represent Horton (clutches) Mfg. Co., Wisconsin Wire Works and other equipment lines.

The Henderson, Srs., recently moved to Florida from Lufkin, Tex., and on Nov. 15 were to take possession of their new home at 908 North Spring St., Pensacola.

Major Henderson has been commanding officer of the bombing force at Drew Field, Tampa, Fla., after participating in African and European bombing raids. He is a Georgia Tech graduate. His younger brothers, who still have school ahead before they join the firm, are Lieut. Richard, flyer in the China-Burma-India theater, and J. A., gunner on a B-29, based on Saipan. He was slightly wounded on Aug. 13 — last day of the war.



JAMES E. HALL, Champion Paper and Fibre Co., Canton, N. C., who was chairman of the Fall meeting of the Southeastern Div. of the Superintendents Assn., Oct. 26 and 27, at Hotel Virginian, Lynchburg.

Millions for More Newsprint in South?

Carl B. Short, newly elected president of the Southern Newspaper Publishers Association, thinks—perhaps wishfully—that there will be considerable newsprint expansion in the South. He claims that several large financial groups are contemplating construction of newsprint mills in the South and said plans are being considered to double the capacity of the Southland Paper Mills' newsprint plant at Lufkin, Texas.

Mr. Short, who is general manager of The Roanoke, Va., Times and The World News, estimated that the Lufkin mill expansion program under consideration would cost from \$3,000,000 to \$5,000,000. The mill is promoted and partly financed by members of the S. N. P. A.

Paper Mills Get Payment For Cotton Use

The U. S. Department of Agriculture announces a program for using cotton in manufacture of paper to develop new uses for cotton.

Rag paper manufacturers may receive incentive payments on the amount by which the cost of cotton delivered at paper mills exceeds 8½¢ per pound. The maximum rate of payment under the program, however, will be 4¢ per pound under present ceiling prices on rag-content paper; payments up to 4¢ per pound are necessary to enable manufacturers to utilize cotton at 12½¢ to 13¢ per pound (delivered), as compared with rags and clippings at much lower prices.

Purchases may be made either from the Commodity Credit Corp. or elsewhere. CCC sales may be made at 12¢ per pound f. o. b. Southern shipping points.

Daughter for Savannah Manager

When T. T. Dunn recently was promoted to resident manager of the Savannah mill of Union Bag & Paper Corp., it was the second honor for him within a few weeks. Mrs. Dunn had just presented him with a lovely daughter, Mary Brewton Dunn.

Mr. Dunn's sister, a U. S. Army Nurse, sent her new niece a silk dress from India for her christening.



MRS. ALICE R. DOW, of Nutley, New Jersey, again re-elected Secretary-Treasurer of the Penn.-N. J.-Del. Division of Superintendents, a position she has faithfully filled for several years.

(Continued from Page 28)

Mrs. E. S. Camden; Mrs. V. A. Curcio; R. F. Vokes, Dilts Machine Works; H. S. Taylor, The Mead Corp.; A. A. Muir, The Mead Corp.; Mrs. A. A. Muir; S. J. Whelen, Shuler & Benninghoff; J. D. McCready, Simonds Saw & Steel Co.; M. P. Wardwell, Carthage Machine Co.

H. L. Coleman, The Mead Corp.; Mrs. H. L. Coleman; N. A. Humphrey, Johns-Manville Co.; V. D. Suiter, Johns-Manville Co.; J. W. Hawthorne, H. & T. McClusky; E. B. Kane, Mutual Boiler Insurance Co.; Ray Harter, R. T. Vanderbilt; John Sale, Hummel-Ross Fibre Corp.; William Putney, Philadelphia Felt Co.

W. E. Greene, W. E. Greene Corp.; Harry J. Kruse, Albemarle Paper Mfg. Co.; J. D. Bailey, North Carolina Pulp & Paper Co.; John B. Christian, Staley Co.; J. G. Henderson, General Electric Co.; Mrs. J. G. Henderson; Bruce Cotton, Socony Vacuum Oil Co.; F. E. Winslow, General Electric Co.; W. Rouse Joyner, Corn Products Co.; Wistar M. Heald, The Mead Corp.

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Top row (left to right): JOE SMART, technical dept., Nekeosa-Edwards Paper Co., DR. T. A. PASCOE, technical director, Nekeosa-Edwards Paper Co., and F. ROBERT MCGONAGLE, Philadelphia Quartz Co., as they started out by car for Appleton session from Port Edwards, Wis., WALTER BAIN, The Glidden Co., Chicago, Ill., who discussed problems of sizing at Appleton on Oct. 9th.

Lower row (left to right): DR. BEN ROWLAND, Institute of Paper Chemistry, who was moderator of the Appleton meeting; JOHN H. GRAFF, also of Institute, who gave paper "Qualitative Determination of Resins and Sizings" at Kalamazoo, Oct. 4th., JOHN P. BAINBRIDGE, Jr., representing Monsanto Chemical Co., Merrimac Div., Everett, Mass., and PAUL EASTON, Hercules Powder Co., PMC Dept., Kalamazoo.

Section, presided over by Chairman Rudy Germanson, industrial engineering research dept., Kalamazoo Vegetable Parchment Co. Mr. Graff showed a chart on color reactions and another on deductive identifications.

The interest in his subject was evidenced by the fact that he was bombarded with questions for over half an hour.

Montana Pulpwood Shipments

Pulpwood shipments from Montana to mills outside the state increased materially during the war years, and will probably remain at a like level in the future, according to Philip Neff, Forest Service regional timber management division, Missoula, Montana.

In a report recently issued Neff cited shipments in 1944 at 10,000 cords to Lake States mills, and a like amount to a mill in Washington. Neff expects Lake States shipments to increase because other sources of supply for these states have become depleted and they turned west for supplies to meet war demands.

C. A. Buckland, general manager of Inland Empire Paper Co., Millwood, Washington, confirmed his company's use of 10,000 cords of pulp wood per year from Montana. Species utilized are white fir and spruce.

New Container Building At Appleton Is Completed

A new Container Section of the Institute of Paper Chemistry, Appleton, Wis., is now completed and stands behind the main Institute building on the Lawrence College Campus.

The new rectangular structure is a California tan cement block building without any windows along its sides. The only windows are for office rooms. Fluorescent lighting, and special ventilation and insulation materials are used.

Robert McKee, of the Institute will be in charge of the new addition to which container manufacturers are contributing many thousands of dollars.

Despite the end of the war, the container interests are convinced that strength development and other experimental work will be just as important now as it was before V-J Day.

Wertheimer Takes Trip

R. S. Wertheimer, vice-president and resident manager of the Longview Fibre Company, Longview, Washington, went east for two weeks starting October 27. The trip will be a combination business and pleasure tour.

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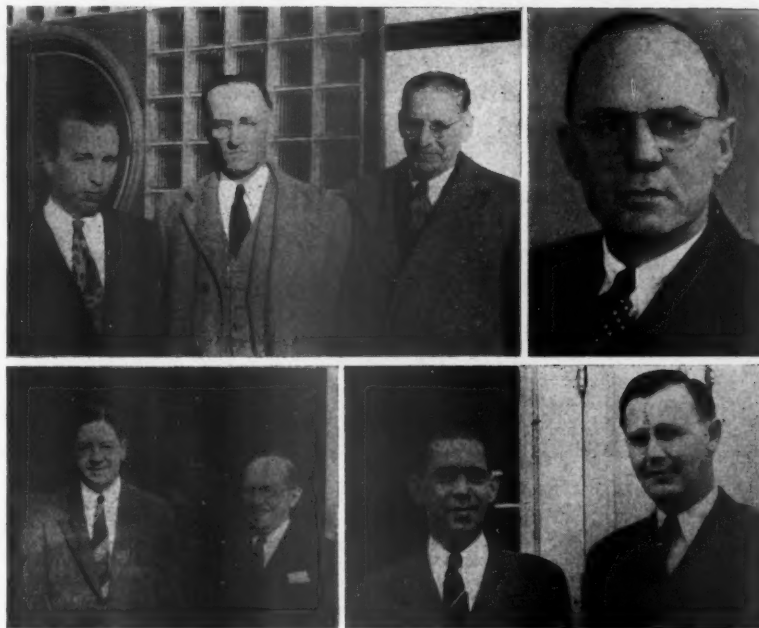
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John Graff of the Institute of Paper Chemistry in Appleton gave a paper on "Qualitative Determination of Resins and Sizings" at the Kalamazoo Valley TAPPI



Some of those who listened and also those who spoke at recent TAPPI meetings in Appleton and Kalamazoo:

Top row (left to right): JOE SMART, technical dept., Nekeosa-Edwards Paper Co., DR. T. A. PASCOE, technical director, Nekeosa-Edwards Paper Co., and F. ROBERT MCGONAGLE, Philadelphia Quartz Co., as they started out by car for Appleton session from Port Edwards, Wis., WALTER BAIN, The Glidden Co., Chicago, Ill., who discussed problems of sizing at Appleton on Oct. 9th.

Lower row (left to right): DR. BEN ROWLAND, Institute of Paper Chemistry, who was moderator of the Appleton meeting; JOHN H. GRAFF, also of Institute, who gave paper "Qualitative Determination of Resins and Sizings" at Kalamazoo, Oct. 4th., JOHN P. BAINBRIDGE, JR., representing Monsanto Chemical Co., Merrimac Div., Everett, Mass., and PAUL EASTON, Hercules Powder Co., PMC Dept., Kalamazoo.

Section, presided over by Chairman Rudy Germanson, industrial engineering research dept., Kalamazoo Vegetable Parchment Co. Mr. Graff showed a chart on color reactions and another on deductive identifications.

The interest in his subject was evidenced by the fact that he was bombarded with questions for over half an hour.

Montana Pulpwood Shipments

Pulpwood shipments from Montana to mills outside the state increased materially during the war years, and will probably remain at a like level in the future, according to Philip Neff, Forest Service regional timber management division, Missoula, Montana.

In a report recently issued Neff cited shipments in 1944 at 10,000 cords to Lake States mills, and a like amount to a mill in Washington. Neff expects Lake States shipments to increase because other sources of supply for these states have become depleted and they turned west for supplies to meet war demands.

C. A. Buckland, general manager of Inland Empire Paper Co., Millwood, Washington, confirmed his company's use of 10,000 cords of pulp wood per year from Montana. Species utilized are white fir and spruce.

New Container Building At Appleton Is Completed

A new Container Section of the Institute of Paper Chemistry, Appleton, Wis., is now completed and stands behind the main Institute building on the Lawrence College Campus.

The new rectangular structure is a California tan cement block building without any windows along its sides. The only windows are for office rooms. Fluorescent lighting, and special ventilation and insulation materials are used.

Robert McKee, of the Institute will be in charge of the new addition to which container manufacturers are contributing many thousands of dollars.

Despite the end of the war, the container interests are convinced that strength development and other experimental work will be just as important now as it was before V-J Day.

Wertheimer Takes Trip

R. S. Wertheimer, vice-president and resident manager of the Longview Fibre Company, Longview, Washington, went east for two weeks starting October 27. The trip will be a combination business and pleasure tour.

PACIFIC COAST TAPPI PANEL

Round Table Presentation Includes Alcohol, Magnesia Base Cooking



HERE ARE MEMBERS OF THE PANEL which discussed Sulfite Waste Liquor, its Uses and Disposal Methods, at Camas:

(Left to right): Dr. R. E. STEPHENSON, Oregon State College; Dr. D. L. SHINN, Crown Zellerbach Corp.; Dr. R. D. TOUSLEY, Washington State College; Dr. J. L. MCCARTHY, University of Washington; RAYMOND S. HATCH, Weyerhaeuser Timber Co.; WILLIAM R. BARBER, Crown Zellerbach Corp. (Moderator), and ERIC ERICSSON, Puget Sound Pulp & Timber Co.

Pacific Coast TAPPI, having come to the end of two wars in which it complied rigorously with all O.D.T. and other activity-confining regulations, burst into enthusiastic activity on October 9 at its first meeting of an enlarged schedule at Camas, Wash. Under a new plan, worked out through polling of members for reaction to specific proposals by the Executive Committee, there were both afternoon and evening sessions. By actual count, 164 members participated, a figure which apparently set an attendance record.

Whether the subject discussed by a round table panel, "Utilization and Disposal of Waste Sulfite Liquor, including By-Product Manufacture" or the array of technically-informed men who participated in the symposium had anything to do with the large turnout may be a moot question. Anyway, the enthusiasm generated points toward continuance of combined afternoon-evening programs.

The afternoon session opened at 3 p.m. with Harold W. Bialkowsky, technical director, Pulp div., Weyerhaeuser Timber Co., Everett, Wash., the new chairman, presiding.

Peter M. Wilkie, Crown Zellerbach Corp., Camas, Wash., presented a paper, illustrated and clarified by slides, on "Some Practical Aspects of Douglas Fir Pulping." This

paper, covering the quality, cooking, washing and recovery, pulp and paper characteristics, pulping variables, bursting strength, tearing strength and refining power, color and other aspects of this commonest of west coast woods, was submitted in competition for the Shibley Award—offered by the Pacific Coast Section of TAPPI for the paper adjudged best from those presented throughout the year.

Mr. Bialkowsky then turned the meeting over to William R. Barber, technical director of Central Technical Dept., Crown Zellerbach Corp., Camas, who conducted the round table discussion on waste sulfite liquor.

Mr. Barber introduced in turn Dr. J. L. McCarthy, Dept. of Chemical Engineering, University of Washington, who presented a paper entitled "The Nature of Waste Sulfite Liquor"; Ray S. Hatch, Research Director, pulp division, Weyerhaeuser Timber Co., Longview, Wash., who discussed "Change of Base from Lime Rock to Magnesia, and its Influence on Waste"; Dr. D. L. Shinn, Central Technical Dept., Crown Zellerbach Corp., Camas, Wash., who presented "Some Experiments in Electrolysis of Waste Sulfite Liquor"; Mr. Gustaf Edling, vice president of the Swedish Steam Boiler Users Association, Stockholm, Sweden, a visitor, who detailed

"Waste Sulfite Liquor Reduction in Sweden"; Eric Ericsson, Puget Sound Pulp & Timber Co., Bellingham, Wash., who explained "Alcohol from Sulfite Waste Liquor" as now produced at that mill; Dr. R. E. Stephenson, Dept. of Agriculture, Oregon State College, Corvallis, Ore., who discussed "Fertilizing Value of Waste Sulfite Liquor When Used on Soils in Irrigation Water"; and Dr. R. D. Tousley, Bureau of Economic Research, Washington State College, Pullman, Wash., who analyzed "Economic and Market Aspects of Ethyl Alcohol From Waste Sulfite Liquor."

Some of these papers are published in this issue and follow this article. Space would not permit publication of all of them. The others will appear in later issues of PULP & PAPER INDUSTRY.

At the dinner meeting, a tribute was paid to Dr. H. K. Benson, dean of the School of Chemistry, University of Washington. Dr. J. L. McCarthy, of Dr. Benson's staff, gave some of the highlights of Dr. Benson's career, recalling that he came from Pennsylvania to Kent, Wash., as principal of the high school in 1900. In 1904 he became assistant professor of chemistry at University of Washington, but in 1906 entered Columbia and received his doctorate in 1907. Dr. Benson returned to University of Washington where he became a professor in chemistry in 1919, and head of the department of chemistry and chemical engineering.

Dr. Benson has published well over 100 papers in the field of wood chemistry and chemical engineering. He was one of the prime movers in organization of the group in 1928 which petitioned for and received a charter as Pacific Coast Section of TAPPI in 1929.

Dr. Benson was presented with a fountain pen engraved with his name. In recalling the TAPPI beginnings on the coast, he said:

"In October of 1928 this group of technical men met. We were surprised that 100 men assembled. We had a table in what had once been a stable, converted into a hotel dining room. We discussed the mat-

DISCUSSES SULFITE LIQUOR USE

Fertilizing Value, Reduction Methods In Sweden and Electrolysis are Discussed

ter and decided to petition for a section of TAPPI.

"Shortly thereafter I received a letter from a magazine which stated, 'we cannot understand the nonsense of building pulp mills out there in the woods,' so I wrote them an article in which I pointed out that even in Wisconsin it was 600 miles to the nearest hemlock and a full 1000 miles to the nearest spruce. The editor sent me \$25 for the paper—the only time I ever got money out of that journal."

Stewart Holbrook, author of "Burning an Empire" and "Holy Old Mackinaw," made a humorous address to close the evening program.

Those in attendance follow:

C. Anderson, Crown Willamette Paper Co., Camas; Harry Anderson, Pulp Div., Weyerhaeuser Timber Co., Everett; H. Andrews, Powell River Company, Ltd., Powell River; Fred Armbruster, Dow Chemical Co., Seattle; William Ashe, Crown Willamette Paper Co., Camas; Fred D. Ayres, Reed College, Portland; Wm. R. Barber, Central Technical Dept. Crown Zellerbach Corp., Camas; Laymon R. Bastian, Crown Zellerbach Corp., Camas; Henry E. Becker, Soundview Pulp Co., Everett; Dr. H. K. Benson, University of Washington, Seattle.

Leonard E. Berger, Fir-Tex Insulating Board Co., St. Helens; H. W. Bialkowski, Pulp Div., Weyerhaeuser Timber Co., Everett; Paul S. Billington, Pulp Div., Weyerhaeuser Timber Co., Longview; J. J. Bogner, Casein Company of America, Seattle; James B. Brown, Crown Zellerbach Corp., Camas; J. F. Bunnett, Western Pine Association, Portland; Allen M. Cadigan, St. Regis Paper Co., Tacoma; O. K. Chapman, Pulp Div., Weyerhaeuser Timber Co., Everett; G. W. Charters, Crown Zellerbach Corp., Camas; Chas. K. Clark, Pulp Div., Weyerhaeuser Timber Co., Longview; Elton B. Clarke, Willamette Iron & Steel Corp., Portland; W. W. Clarke, Longview Fibre Co., Longview.

W. M. Clines, General Chemical Co., Seattle; Sidney M. Collier, Puget Sound Pulp & Timber Co., Bellingham; Charles N. Cone, M. & M. Woodworking Co., Portland; N. W. Coster, Soundview Pulp Co., Everett; J. V. B. Cox, Hercules Powder Co., Portland; Eric R. Craig, Hawley Pulp & Paper Co., Oregon City; G. R. Cranor, Oregon Pulp & Paper Co., Salem; R. D. Day, Crown Willamette Paper Co., Camas; Paul M. Dunn, Oregon State College, Corvallis; James A. Dykstra, Hawley Pulp & Paper Co., Oregon City; Gustaf Edling, Steam Boiler Users Assn., Stockholm.

M. L. Edwards, Pulp Div., Weyerhaeuser Timber Co., Longview; C. A. Enghouse, Crown Zellerbach Corp., West Linn; E. O. Ericsson, Puget Sound Pulp &

Timber Co., Bellingham; H. O. Ervin, Oregon Forest Products Lab., Corvallis; Ed Escher, Longview Fibre Co., Longview; W. L. Failing, Fir-Tex Insulating Board Co., St. Helens; Lyle G. Fear, Westinghouse Electric Corp., Portland; Chester A. Fee, Pulp & Paper Industry, Portland; F. J. Fitzpatrick, Monarch Forge & Machine Works, Portland; Milton Franklin, Crown Willamette Paper Co., Camas; Leo Friedman, Oregon State College, Corvallis; G. H. Gallaway, Crown Zellerbach Corp., Camas.

Irving R. Gard, Merrick Scale Mfg. Co., Seattle; G. L. Geisinger, Northwest Filter Co., Seattle; William R. Gibson, Northwest Filter Co., Seattle; Harry Glenn, Crown Willamette Paper Co., Camas; Ed Goetzl, Forest Products News, Portland; T. R. Goodwin, Crown Willamette Paper Co., Camas; W. G. Goodwin, Crown Willamette Paper Co., Camas; Russell Graff, Longview Fibre Co., Longview; C. H. Graham, Burnstead-Woolford, Portland; T. H. Grant, Hawley Pulp & Paper Co., Oregon City; H. M. Green, Crown Willamette Paper Co., Camas; A. S. Gregory, U. S. Army, Longview; J. A. Guthrie, Washington State College, Pullman; R. N. Hammond, Research Dept., Weyerhaeuser Timber Co., Longview.

J. E. Hanny, Crown Zellerbach Corp., Camas; John F. Hart, Longview Fibre Co., Longview; R. S. Hatch, Pulp Div., Weyerhaeuser Timber Co., Longview; H. A. Haufl, Pulp Div., Weyerhaeuser Timber Co., Longview; Jan Haugerod, Crown Willamette Paper Co., West Linn; S. E. Hazelquist, Pulp Div., Weyerhaeuser Timber Co., Longview; H. R. Heuer, Pulp Div., Weyerhaeuser Timber Co.,

Longview; Leonidas E. Hill, Jr., Pulp Div., Weyerhaeuser Timber Co., Everett; Raymond P. Hill, Pulp Bleaching Co., Seattle; Stewart Holbrook, Portland; W. F. Holzer, Central Technical Dept., Crown Zellerbach Corp., Camas.

Otto Hudrlik, Flox Co., Portland; Frank H. Hurley, Reed College, Portland; K. W. Hutchins, Crown Willamette Paper Co., Camas; J. B. Hyde, Crown Zellerbach Corp., Camas; W. C. Jacoby, Crown Zellerbach Corp., Camas; H. M. Jones, Jr., Ohio Knife Co., Portland; M. C. Kaphingst, Columbia River Paper Mills, Vancouver; W. H. Kasch, Weyerhaeuser Timber Co., Everett; W. N. Kelly, Weyerhaeuser Timber Co., Longview; G. D. King, Central Technical Dept., Crown Zellerbach Corp., Camas.

J. W. Klein, Longview Fibre Co., Longview; Donald F. Knapp, Crown Zellerbach Corp., Camas; E. F. Kurth, Oregon State College, Corvallis; K. H. Larkin, Pulp Div., Weyerhaeuser Timber Co., Longview; E. E. Logsdon, Hawley Pulp & Paper Co., Oregon City; Carl Loron, Crown Willamette Paper Co., Camas; Gus Lorenz, Crown Zellerbach Corp., Camas; E. W. Lozier, Western Pine Association, Portland; Milton J. Maguire, Hercules Powder Co., Portland; Wm. Marteny, Crown Zellerbach Corp., Camas; E. E. Matson, U. S. Forest Service, Portland.

C. J. McAllister, Simonds Worden White Co., Portland; Joseph L. McCarthy, University of Washington, Seattle; Loyd McDonald, Longview Fibre Co., Longview; L. D. McGlothlin, Crown Willamette Paper Co., Camas; J. J. McNair, Pulp Div., Weyerhaeuser Timber Co., Longview; Leonard McMaster, Asten-Hill Mfg. Co., Philadelphia; O. F. Michaelis, Crown Willamette Paper Co., Camas; W. C. Migler, Crown Willamette Paper Co., Camas; George E. Miller, Columbia River Paper Mills, Vancouver, Wash.; H. Norman Miller, Westinghouse Electric, Portland; Murl Miller, Soundview Pulp Co., Everett.

R. G. Misphey, Central Technical Dept., Crown Zellerbach Corp., Camas; O. P. Morgan, Pulp Div., Weyerhaeuser Timber Co., Longview; A. L. Moss, National Gypsum Co., Mobile, Ala.; L. R. Mullineaux, Crown Willamette Paper Co., Camas; A. G. Natwick, Crown Zellerbach Corp., Camas; Ben Natwick, Appleton Wire Works, Inc., Camas; T. J. Nelson, C & H Sugar Refining Corp., Crockett, Calif.; Arthur Newcomb, Crown Zellerbach Corp., Camas; M. H. Norton, Longview Fibre Co., Longview; E. H. Nunn, Crown Zellerbach Corp., West Linn; A. Orup, Soundview Pulp Co., Everett; R. Paradis, Pacific Mills, Ltd., Ocean Falls; Q. P. Peniston, University of Washington, Seattle; J. C. Plankinton, Crown Zellerbach Corp., Camas; R. K. Pratt, Crown Zellerbach Corp., West Linn; E. A. Price, Crown Zellerbach Corp., Camas.

E. D. Rich, Cellulose Products Co., Tacoma; D. M. Ritter, University of Washington, Seattle; I. J. Rivenes, Pacific Coast Supply Co., Portland; G. H. Rud-



DR. H. K. BENSON, Dean of School of Chemistry and Chem. Engineering, U. of Washington. He got a fountain pen and he remembered that Coast's first TAPPI-to-be group met in what was a stable.

kin, British Columbia Pulp & Paper Co., Ltd., Woodfibre; A. W. Russell, Longview Fibre Co., Longview; Vernon Saindon, Van Waters & Rogers, Inc., Seattle; S. A. Salmonson, Soundview Pulp Co., Everett; W. A. Salmonson, Simonds Worden White Co., Seattle; Otto H. Sangder, Rayonier Incorporated, Hoquiam; J. V. Savage, Crown Zellerbach Corp., Camas; Arthur F. Scott, Reed College, Portland.

Leon E. Semke, Crown Willamette Paper Co., Camas; C. G. Shaw, Crown Willamette Paper Co., Camas; W. J. Shelton, Longview Fibre Co., Longview; Brian Shera, Pennsylvania Salt Mfg. Co., Tacoma; D. L. Shinn, Crown Zellerbach Corp., Camas; Fred R. Sievers, Crown Zellerbach Corp., Camas; Lawrence K. Smith, Pulp & Paper Industry, Seattle; Ray Smythe, Rice Barton Corp., Portland; Gus A. Sparre, Stein Hall & Co., Inc., Portland; Chas. A. Spoon, Rayonier Inc., Hoquiam; R. E. Stephenson, Oregon State College, Corvallis.

C. F. Stevey, Crown Willamette Paper Co., Camas; A. W. Stout, Western Pine Association, Portland; H. V. Tartar, University of Washington, Seattle; Paul J. Thiess, Monarch Forge & Machine Works,



WILLIAM R. BARBER, Tech. Dir., Crown Zellerbach Corp., who was Moderator of Sulfite Liquor Panel: "For too long, sulfite waste liquor has been looked at fantastically."

Portland; E. H. Tidland, Pacific Coast Supply Co., Portland.

R. D. Tousley, Washington State College, Pullman; G. Trethewey, British Columbia Pulp & Paper Co., Ltd., Woodfibre; R. M. True, General Dyestuff Corporation, Portland; Preston Varney, Pulp Div., Weyerhaeuser Timber Co., Longview; A. S. Viger, Shelton; R. D. Waddell, Crown Willamette Paper Co., Lebanon; Harold C. Wall, Longview Fibre Co., Longview; Jonathan B. Ward, Hooker Electrochemical Co., Tacoma; Ruth M. Watts, Pulp Div., Weyerhaeuser Timber Co., Longview.

Ed Webberley, Crown Willamette Paper Co., Camas; W. E. Wegner, Crown Zellerbach Corp., Camas; Fred J. Welber, Hawley Pulp & Paper Co., Oregon City; J. W. Wenger, Crown Zellerbach Corp., Camas; E. N. Wennberg, Columbia River Paper Mills, Vancouver, Wash.; O. C. Wheeler, Crown Zellerbach Corp., Camas; Peter M. Wilkie, Crown Willamette Paper Co., Camas; Zina A. Wise, Grif-fith Rubber Mills, Portland; Herb Wy-more, Crown Zellerbach Corp., Camas, and E. V. Young, Columbia River Paper Mills, Vancouver, Wash.

REMARKS BY THE MODERATOR

By William R. Barber

Technical Director, Central Technical Dept., Crown Zellerbach Corp.

(Moderator of Panel on Waste Liquor Uses and Disposal, Pacific Coast TAPPI, Oct. 9, Camas, Wash.)

There has been no phase of pulp making so bandied about so many years as what to do with waste liquor. There has been prodigious effort and much money has been spent to solve the problem, whereas the industry knows it is not one problem, but a series of separate problems.

For altogether too long for the good of the industry, waste sulfite liquor has been looked at fantastically, more than realistically. It is our purpose today to consider calcium based waste sulfite liquor realistically, as the chemist is forced to do. It is not our intention to present either a negative or pessimistic picture; it is our intention to present a realistic picture. We shall avoid the fantasy that rubber can be made from it, and by the same token of reasoning we would avoid the contention that pulp can be made from table sugar, although the analogies are the same.

Waste sulfite liquor presents a case of low energy potential. This is its basic handicap. It is some 90% water. There exists at any cross section of the Columbia River a tremendous amount of energy of water flow, but it is not useful; so,

while the sum total of waste sulfite liquor contains among its constituents enormous quantities of energy, it may be said that its energy can only be used by raising its low potential of energy to a higher potential before any return can be expected, just as one would have to dam the Columbia at our cross section in order to create sufficient force for the generation of power.

It is said that Saint Paul and Saint

Peter went out one day to enjoy a round of golf. Saint Paul made a perfect hole-in-one. Saint Peter likewise stepped up and made a hole-in-one. They strode silently to the green, and Saint Paul recovered the balls from the hole while Saint Peter nonchalantly marked down the score. As they approached the second tee, Paul remarked to Peter, "Now, let's cut the miracles and get down to business." There are no miracles in calcium based sulfite liquor. . . .

There are several problems concerned in the utilization of waste sulfite liquor—the lignin problem, the carbohydrates problem, and the inorganic problem. They are as separate in their chemistry as day is from night. That's why we emphasize that it is not the waste sulfite, but the sulfite liquor problem and what might be done with this tremendous amount of organics in the waste liquor, particularly in connection with the enormous quantity of lignin.

There are other metals which might be used instead of calcium. Perhaps it is unfortunate that the calcium base system was ever discovered.



FRANK C. STRATFORD (right), retiring manager of the San Francisco Div. of Zellerbach Paper Co. who was presented with a gold wrist watch band by **HAROLD L. ZELLERBACH** (left), president of the company, in behalf of STRATFORD'S fellow employees.

NATURE OF SULFITE WASTE LIQUOR

By Joseph L. McCarthy

Asst. Professor of Chem. Eng., University of Washington
Presented before Pacific Coast TAPPI, Oct. 9, Camas, Wash.

Sulfite waste liquor came into existence as a result of the invention and development of the sulfite pulping process about 1866 by the American, B. C. Tilghman, by the Swede, C. D. Ekman, and by the German, A. Mitscherlich. According to Hagglund, the world's first sulfite pulp mill was operated by Ekman at Bergvek, Sweden.

During the early development of the sulfite pulp industry, no particular interest appeared to have been manifested in sulfite waste liquor, but in recent years men throughout the world have come to awareness that it would be of great benefit from many points of view if ways could be found to utilize sulfite waste liquor. A truly huge mass of investigational work has been done with an eye to the solution of this problem. Much of this research, unfortunately, has been of a superficial character.

Only recently have really basic contributions been made toward solution to the problem of the structure and chemistry of the lignin, the major component of sulfite waste liquor, by the great pioneer researches of Harold Hibbert in Canada, Karl Freudenberg in Germany, and Eric Hagglund in Sweden. It is the basic new knowledge derived from the researches of these men and from a host of other workers which in years to come will be found to be at the heart of the processes which will succeed in bringing into useful form the substances derived from wood and present in sulfite waste liquor.

The subjects of wood chemistry in general, and the chemistry of lignin and of sulfite waste liquor in particular, may well be of direct practical interest to the people of the Pacific Northwest where the pulp and paper and other forest industries comprise such a large proportion of the total industrial development of the region. Better utilization of forest resources may be achieved by development of practical methods for utilization of sulfite waste liquor. At the foundation of the problem of utilization of sulfite waste liquor is the question of its nature and composition and in the following lines this subject will be briefly considered.

Sulfite waste liquor is a water solution containing in dissolved form most of the chemicals used in sulfite pulping and also the constituents of wood other than the cellulose separated as unbleached pulp.

The composition of sulfite waste liquor may well be considered with reference to the chemical structure of wood itself and to the chemistry of sulfite pulping process. Wood contains cellulose, hemicelluloses, lignin and other minor constituents. For sulfite pulping there is generally an acidic pulping reagent consisting of an aqueous solution of sulfurous acid and calcium bisulfite in such proportions that the total concentration of sulfurous acid and bisulfite ion amounts to about 50 or 60 grams per liter calculated as SO_2 and the concentration of calcium ion is such that about eighty per cent of the sulfur dioxide is present as sulfurous acid and about

twenty per cent is present as bisulfite ion.

At elevated temperature this reagent brings about a number of interesting chemical reactions which are at the foundation of the manufacture of sulfite pulp; (a) the reagent, by reason of its sufficiently acidic nature, hydrolyzes chemical linkages existing between lignin and carbohydrate constituents; at the same time the sulfurous acid reagent is not sufficiently acidic markedly to hydrolyze the cellulose chains, thus preserving these in useful state for use as wood pulp; (b) the reagent, probably by reason of its bisulfite ion component, accomplishes sulfonation of lignin whereby this constituent is rendered soluble in water and dissolves; (c) the reagent, by reason of its content of calcium or some other basic ion constituent held as the bisulfite, supplies base for neutralization of the formed strong lignin sulfonic acids simultaneously at the cost of depletion of the bisulfite ion present and thereby prevents undesirable degradation of the cellulose which otherwise would be brought about by the high acidity caused by the presence of free lignin sulfonic acids; (d) the reagent, by reason of its content of sulfurous acid, does hydrolyze the chemical linkages existing between sugar units in hemicelluloses and thus converts these polymers into monomers some of which are fermentable; (e) the reagent, probably by reason of its content of bisulfite ion, may convert some monomeric sugars, according to Hagglund's view, from aldoses to aldose bisulfite addition compounds to aldose sulfonic acids and finally to aldonic acids, these reactions probably proceeding to a considerable extent in the sulfite pulping procedures carried out under more intense reaction conditions as is the case in making dissolving pulps.

At the end of the sulfite pulping reaction, impure cellulose remains as unbleached pulp; but practically all other constituents of the wood are now in solution. The hemicellulose constituents have dissolved because they have been depolymerized by hydrolysis into the monomeric sugars glucose, mannose, galactose and xylose by the acidic character of the cooking liquor. Some of these resultant simple aldose sugars have been further converted to sugar acids at the cost of some sulfur consumption. The lignins have dissolved for two reasons; firstly, because the acidic cooking liquor caused hydrolysis of the chemical linkage which bound them to carbohydrates, and secondly, because the bisulfite ions in the cooking liquor reacted to form sulfonic acid groupings on the lignin and these groupings permitted the high molecular weight lignin to be dissolved.

Thus, one can recognize lignin sulfonic acids, hexose and pentose sugars, sugar acids, and calcium ions, as the major discrete types of constituents of calcium base sulfite waste liquor.

Lignin Is a Polymer

Lignin sulfonic acids have been sub-

jected to extensive studies. Hibbert and Freudenberg have established beyond reasonable doubt, by using such experimental techniques as alkaline cleavage, alcoholysis and hydrogenolysis, that lignin is a polymer, the units of which are of the phenyl propane type, perhaps originating from the coniferin present in the cambial sap of growing trees. In soft wood lignin such as that from spruce or hemlock, the principal and probably the exclusive configuration of the phenolic nuclei is the guaiacyl (4-hydroxy, 4 methoxy phenyl); in hardwood lignin such as that from maple or aspen, phenolic nuclei of both the guaiacyl and the syringyl (4 hydroxy, 3, 5 dimethoxy phenyl) types are present, with the latter apparently predominating.

The nature of the linkage between these monomeric units has not yet been definitely ascertained. There is some evidence that the phenolic nuclei may be linked to one another, through their propyl side chains formed into furane or pyrane rings. Values for molecular weight of various soluble lignins have recently been reported by Schwabe and Hasner as ranging from about 400 to about 20,000, but this question has yet to be decided finally. It is possible that lignin sulfonic acids may be primarily linear or branched chain polymers of fairly average high molecular weight.

Recent analyses by Erdman of purified softwood lignin sulfonic acid fractions indicate generally that; (a) there is very nearly one methoxyl grouping per ten carbon atoms, which is what is to be expected if softwood lignin is a polymer constructed from guaiacyl propane derivatives, (b) there is one methoxyl grouping per 0.4 to 0.7 atoms of sulfur, thus showing that there is probably something more than every other one of the guaiacyl propyl units carrying a sulfur atom.

Sulfur is combined in lignin sulfonic acid mostly as sulfonic acid residues. From certain features of the vanillin cleavage reaction, it seems probable that these residues are attached in the propyl side chains to carbon atoms in the alpha position with respect to the guaiacyl nuclei.

Besides these characteristic methoxyl and sulfonic acid radicals, lignin sulfonic acids carry other functional groupings. By exhaustive methylation, the methoxyl content of lignin sulfonic acids can be raised to about 30% on a sulfur-free basis, thus indicating that there is present about one methylatable hydroxyl grouping per guaiacyl propane type unit. Probably some carbonyl groupings exist which are capable of forming bisulfite addition compounds and of contributing to the reducing character of sulfite waste liquor, but the frequency of occurrence of such groupings is not yet clear.

The concentration of lignin sulfonic acids in sulfite waste liquor can be estimated readily and probably with good accuracy by determination of the methoxyl content of sulfite waste liquor solids and then computation of their lig-

nin sulfonic acid content by taking a proper value for the methoxyl content of pure lignin sulfonic acid. Dr. Q. P. Peniston, at the University of Washington, has recently re-examined the best available data on this question and has concluded that an average value for softwood lignin sulfonic acids is approximately 13.7% methoxyl. Applying this method of estimation to a typical calcium base sulfite waste liquor, it is found that about 65% of the solid constituents are lignin sulfonic acids.

Sugar Constituents

To turn to the sugar constituents which arise as a result of hydrolysis of the hemicelluloses, Hagglund and co-workers have reported the values shown in the following table as descriptive of the concentration of individual sugars present in sulfite waste liquor from spruce wood.

Concentration of Various Sugars in Spruce Sulfite Waste Liquor

	Total Sugar %	Fermentable Sugar %
Mannose	42.7	42.7
Glucose	28.9	28.9
Xylose	17.0
Galactose	4.2
Fructose	4.0	4.0
Galacturonic acid	3.2
Total	100.0	75.6

Although the proportions of the individual sugars will vary somewhat depending upon the species and source of the wood used and also upon the conditions of the pulping reaction, it seems probable that the data shown in the table is roughly representative of the sugars present in Pacific Northwest sulfite waste liquors. These sugars have reducing groupings and their total estimated concentration in sulfite waste liquor may be estimated by the usual copper reduction type of sugar analysis to give values in the vicinity of 2.4% calculated as glucose for a calcium base sulfite waste liquor of 12% total solids. As shown in above table, about three quarters of total sugars may be fermentable by yeasts and in processing sulfite waste liquor to give ethanol it is these fermentable sugars which are substantially removed.

Recently Hagglund and co-workers have shown that reaction products of sugars and sulfur derivatives are constituents of sulfite waste liquor. These appear to include sugar bisulfite addition compounds, sugar sulfonic acids, and sugar aldonic acids. They have not yet been extensively studied but appear to be the source of most of the loosely bound sulfur dioxide and also of great influence in determining the fermentability of sulfite waste liquor. Probably they may amount to some 10% of the solids in sulfite waste liquor and be present in larger amounts in liquors from dissolving pulp production.

In calcium base sulfite waste liquor, there are present calcium ions to the extent of about 7 grams per liter expressed as CaO.

The sulfur in sulfite waste liquor is present as (a) "free SO₂" i. e. sulfurous acid and bisulfite ions, (b) "loosely bound SO₂" i. e. derivatives readily hydrolyzed by dilute alkali and consisting

mostly of carbohydrate bisulfite addition compounds, (c) "tightly bound SO₂" i. e. probably as true sulfonic acids of lignin and sugars and hydrolyzed only in hot strong alkali, (d) sulfate, thiosulfate, polythionic acids, and free sulfur in small amounts. The total sulfur in sulfite waste liquor usually amounts to

about ten grams of sulfur per liter.

Small amounts of many constituents may also be present in sulfite waste liquor, such as methanol, ethanol, acetic and formic acids, furfural, terpenes, resins and others.

An estimated composition for calcium base sulfite waste liquor follows:

Estimated Composition of Calcium Base Sulfite Waste Liquor

(lbs. per 100 lbs. of sulfite waste liquor)

Lignin Sulfonic Acids	7.8
Mannose	1.0
Glucose	0.7
Fructose	0.1
Total Fermentable Sugar	1.8
Xylose	0.4
Galactose	0.1
Galacturonic Acid	0.1
Total Non-Fermentable Sugars	0.6
Total Reducing Sugars	2.4
Sugar-SO ₂ Derivatives and Misc. Compounds	1.0
Calcium (as CaO)	0.8
Total Solids	12.0
Water	88.0
Calcium Base Sulfite Waste Liquor.....	100.0 lbs.

The concentration of total solids in sulfite waste liquor has been taken in preceding table as 12%, but naturally this depends upon the operating conditions obtaining in a sulfite pulp mill. Assuming a weight ratio of 1 part of dry wood to 4.0 parts of pulping reagent and assuming a 45% yield of unbleached pulp, then there would exist, for example, a concentration of about 12% total solids in sulfite waste liquor. Under these same conditions, there would also exist by weight about ten parts of sulfite waste liquor per part of dry unbleached pulp, i. e. about 2300 gallons of sulfite waste liquor per ton of dry unbleached pulp. The degree of recovery of this liquor naturally depends upon equipment and operating methods. However, if it be assumed that at least 2000 gallons of sulfite waste liquor at 12% total solids can be recovered per ton of sulfite pulp produced, and that sulfite pulp production in the Pacific Northwest is roughly 800,000 tons per year, then the quantities of sulfite waste liquor constituents available each year may be roughly estimated as follows:

Estimated Quantities of Sulfite Waste Liquor Constituents Available Annually in the Pacific Northwest

Lignin sulfonic acids	1,074,000,000
Fermentable Sugars	247,000,000
Sugar-SO ₂ deriv. and misc. compounds	137,000,000
Non-fermentable Sugars	82,000,000
Calcium (as CaO)	110,000,000
SWL Total Solids	1,650,000,000
Water	12,150,000,000
Calcium Base Sulfite Waste Liquor Available, lbs./yr.....	13,800,000,000

Sulfite waste liquor, characterized by its complex composition and by the huge amounts in which it is available in the Pacific Northwest, stands as a challenge to those interested in bringing about its utilization.

Questions

Q.: How many tons of lignins from waste sulfite liquor are in commercial use in proportion to the tons of pulp made?

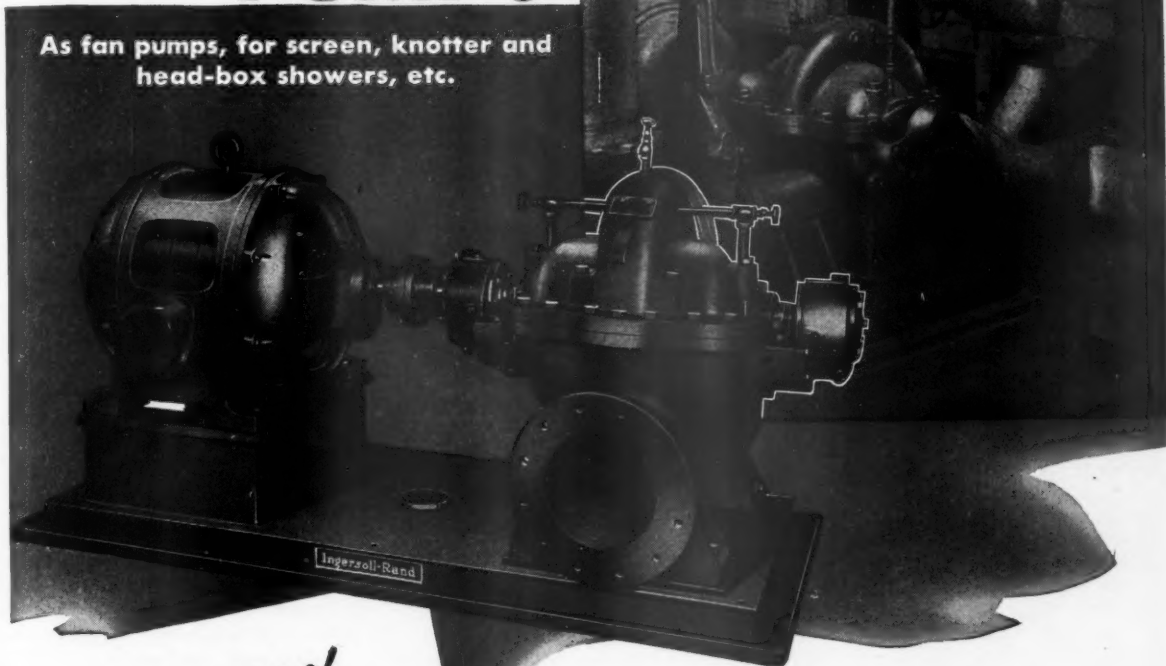
DR. MCCARTHY: I would estimate it would be perhaps less than one per cent. One-tenth of a per cent would be my guess.

Q.: Then we have a great amount of lignin we are not using?

DR. MCCARTHY: Assuming that in the Pacific Northwest we have a production of some three thousand tons of sulfite pulp per day, and that there could be recovered from Pacific Northwest sulfite pulp mills about 2000 gallons, then let's see what this means. The quantity of waste sulfite liquor amounts to about 2000 pounds of sulfite waste liquor per ton of pulp—about ton for ton. As we have a production of 2000 tons a day, we have 4,000,000 pounds a day of these solid constituents in the Pacific Northwest. If we run that off for 300 days, it means 1,200,000,000 pounds of solids a year. Let's break them down again. The lignin sulfonic acids would amount to 780,000,000 pounds per year in the Pacific Northwest; next, fermentable sugar, 180,000,000 per year in the Pacific Northwest—these are calculated as being dry, but unfortunately they are not; sugar SO₂ derivative about 100,000,000 pounds; non-fermentable, 60,000,000, and calcium 80,000,000 pounds. These figures I think we should all think about.

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PULP & PAPER INDUSTRY

37

CHANGE OF BASE FROM LIME ROCK TO MAGNESIA--ITS INFLUENCE ON WASTE

By Raymond S. Hatch

Research Director, Pulp Div., Weyerhaeuser Timber Co.

The total production of sulfite pulp in the United States amounts to 10,000 tons per day. You can go ahead and figure out exactly how much lignin, carbohydrates and inorganic material is being wasted per day, and it amounts to a staggering figure.

Now, there are undoubtedly chemical methods of attack, and we may get very valuable derivatives from either lignin or carbohydrates in the waste liquor, but let's consider it from another viewpoint.

What are the raw materials of pulp manufacture? Those raw materials are wood, chemicals and energy. We purchase the sulfur, we purchase the base, and the wood comes from our operations, either owned wholly or purchased; then, in addition to that, it is necessary for us to purchase fuel to produce energy.

Now, in the Pacific Northwest we are largely dependent upon waste wood for fuel. In other words, we utilize all of the organic matter in the wood and convert that into energy. It is possible to extract the cellulose from that wood and then use the remaining organic matter for the generation of steam and power. Mr. Barber mentioned that the energy level of that in waste

liquor is extremely low, and that we must raise that level if we are going to utilize that potential energy in the organic waste from our pulping process.

Now, one of the objections to the use of calcium base waste liquor as a source of fuel has been the difficulty of evaporating such liquor to a concentration where it will burn. Since there are considerable amounts of calcium sulfate formed in the concentration, this calcium sulfate separates out and becomes a very troublesome scale in any modern vacuum evaporator. There has been a great deal of time and money spent in attempting to get around this one very important difficulty.

Another thing in the evaporation and burning of calcium base waste liquor is when the evaporated liquor is burned the base and the sulfur which was used in the cooking process in the form of calcium bisulfite is almost entirely lost as calcium sulfate. While it may be converted into sulfur and lime, it is an expensive process and one not readily accomplished economically.

Now, it happens that of the other bases that are possibly available for the production of sulfite pulp, magnesium is unique. When a magnesium-sulfur-organic compound is

burned, the magnesium is converted principally into magnesium oxide. Now, magnesium oxide is the starting material for making magnesium. In burning the liquor the sulfur at the same time passes off in the combustion gases as sulfur dioxide; therefore, by properly collecting the ash from the furnace, which consists of magnesium oxide, and making that ash into a slurry and putting it through a series of absorption towers counter current to the combustion gases, we can regenerate our cooking acids.

Just a word about the cooking process. Dr. McCarthy mentioned that we use a mixture of metallic bisulfide and free sulfur dioxide, and it happens that when the waste liquor is discharged and the free sulfur dioxide has been removed, the magnesium present, or any metal present as a base, and the sulfur present in a combined form, exist in the ratio necessary to make magnesium bisulfite or calcium bisulfite, so that when we put the ash in the form of a slurry and use that as an absorbing medium for the SO_2 that comes off in the burning process, we finally get a solution of magnesium bisulfite and the free SO_2 that has been used in the cooking process



AT CAMAS TAPPI Meeting (left to right): H. W. Bialkowsky, Chairman of the Coast Section and Tech. Dir., Everett mill, Pulp Div., Weyerhaeuser Timber Co., and STEWART HOLBROOK, author. In next view, DR. R. D. TOUSLEY, Wash. State College (holding cup); G. W. CHARTERS, Asst. Res. Mgr., Crown Zellerbach Corp., Camas; RAY HATCH, Research Director, Pulp Div., Weyerhaeuser Timber Co.; Dr. D. L. SHINN, Central Tech. Dept., Crown Zellerbach Corp.; E. N. WENNERG, Supt., Columbia River Paper Mills, and PETER M. WILKIE, Crown Zellerbach Corp., Camas.

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and acts as a driving force in converting the wood constituents into soluble form, simply acts as a circulating load. With a proper type of recovery system the sulfur dioxide may be recovered and used to fortify the magnesium bisulfite solution which comes from the absorption tower.

Amounts Recovered

Now, the process is comparatively simple. We simply change from a calcium base to a magnesium base. If we wasted all of our magnesium, it would be probably too expensive a process to operate, but we propose to recover, and we can recover, about 90% of our magnesium and 90% of our sulfur.

Let's consider the amount of sulfur and the amount of lime rock that are presently used in the sulfite industry. We normally use somewhere in the neighborhood of 275 pounds of sulfur to produce a ton of pulp, and we used somewhere in the vicinity of 350 pounds of lime rock per ton of pulp. If we can recover 90% of our chemicals, that means that our sulfur consumption per ton of pulp will drop from 275 pounds of sulfur down to something in the vicinity of 27 pounds of sulfur per ton of pulp. Magnesium has an atomic weight of 24, as compared to calcium of 40; therefore, the amount of base we have to use to produce the necessary bisulfite is much less due to the lower atomic weight of magnesium, and we would use, if we were using magnesium oxide something in the vicinity of 140 pounds of magnesium oxide per ton of pulp. If we recover 90%,

that means we will use only 14 pounds of magnesium oxide per ton of pulp produced. At the same time we will generate steam which we normally would have to buy, or buy fuel to produce that steam. If that steam is generated at sufficiently high pressure, we can put it through a turbine and recover from the high pressure steam sufficient power to substantially operate the mill. That is the basis of the magnesium base recovery system, so-called. We believe that in putting a system of this kind into a modern sulfite mill we will have accomplished a very definite objective of conservation of natural resources. We utilize the energy present in that organic matter as a major constituent in our process—that is, we use it for process steam and power, and we recover the chemicals which we buy for extracting the non-cellulose portion of the wood.

Now, I have no doubt at all that the time is going to come when we will find many uses for the organic matter that is dissolved in sulfite waste liquor. That time has not yet arrived. The chemistry of the organic portion of sulfite waste liquor is extremely complex. It is possible to produce several derivatives from sulfite waste liquor, but so far the derivatives that can be produced and marketed successfully are those which could be made substantially from the waste liquor from one digester operating 350 days a year. Now, we have considerably more than one digester in a sulfite pulp mill, and we have to find a market for derivatives representing something over 10,000 tons of organic sol-

ids per day. That's a stupendous problem, and a challenge to the organic chemists. I have enough confidence in the ability of the organic chemists of this country to believe that they will eventually solve that problem and convert much of the organic matter present into derivatives which will make for better living and a higher economy in the whole process. Until that time, however, I think that our efforts should be devoted mainly to recovering the organic matter present in the waste liquor in some form which we can use ourselves, and which will aid in the conservation of our natural resources.

Questions

QUESTION: Is there any change in pulp quality produced?

MR. HATCH: None that we have been able to determine. As a matter of fact, we probably will get a fully equal, and possibly a slightly better pulp quality, because we are using a more soluble base.

QUESTION: Is the system in current use anywhere?

MR. HATCH: Not yet.

QUESTION: Where is your source of supply of magnesium oxide?

MR. HATCH: Well, the chief source of supply of magnesium oxide is sea water. Prior to the war, about the only source of magnesium in a pure enough form for us to use in this process was from the bitters, resulting from salt seawater production in California. The bitters, after the salt has been separated, contain a very high percentage of magnesium that is readily precipitated with lime in a very pure con-



OTHERS AT CAMAS MEETING (Left to right): A. G. NATWICK, Asst. Res. Mgr., Crown Zellerbach Corp.; Dean PAUL M. DUNN, Oregon State College, and W. N. KELLY, Mgr., Longview mill, Pulp Div., Weyerhaeuser Tmbr. Co. In next group, ROBT. M. TRUE, General Dyestuff Corp.; Dr. R. E. STEPHENSON, Oregon State College; GEO. H. GALLOWAY, Crown Zellerbach Corp., Camas; H. V. TARTAR, Univ. of Wash.; E. O. ERICSSON, Puget Sound Pulp & Tbr. Co.; J. E. HANNY, Res. Mgr., Crown Zellerbach Corp., Camas; Dr. J. D. MCCARTHY, Univ. of Wash.; W. R. BARBER, Crown Zellerbach Corp.



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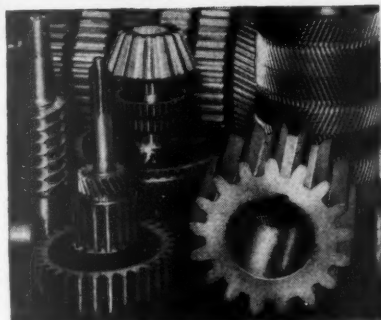


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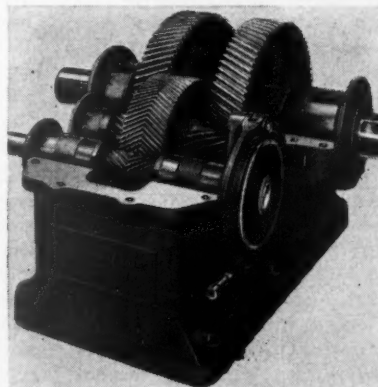
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dition. After the outbreak of the war and our tremendous expansion in manufacture of metallic magnesium, several large producers of pure magnesium oxide have come into being, and we have a wide choice in obtaining a magnesium oxide of sufficient purity at a relatively reasonable price. So there is no question about the source of magnesium oxide; but we can't use magnesium oxide that is high in calcium, because that means a loss of sulfur.

Cost of Magnesium Oxide

QUESTION: What is the current

going price of magnesium oxide?

MR. HATCH: It is somewhere in the vicinity of \$45.00 a ton, delivered.

QUESTION: Do you expect the waste products to be substantially the same?

MR. HATCH: Exactly the same.

QUESTION: Isn't there danger of accumulation of other materials?

MR. HATCH: No. There might be a few chlorides, but most of those will pass out in the fumes from the tower.

QUESTION: What about magnesium chloride?

MR. HATCH: We don't have magnesium chloride. The only products

we get from the magnesium are magnesium and magnesium oxide. About 7% of the total circulating load of magnesium sulfate is sulfate; but every time the sulfate comes around it is reduced again to magnesium oxide and free SO_2 . Some chemicals are extracted from the wood—some lime, potassium, and a certain amount of iron and manganese, but in a properly designed system those come out either as insoluble hydroxides or sulfites and they can be filtered out. When the acid passes through the recovery system we get the pure magnesia base liquor, with no contamination.

ALCOHOL FROM SULFITE WASTE LIQUOR

By E. O. Ericsson,

Technical Director, Puget Sound Pulp & Timber Co.

*Paper presented at October 9, 1945, TAPPI Meeting, Camas, Washington.

The manufacture of alcohol from sulfite waste liquor has long been of interest to the pulp industry as a method of utilizing this trade waste at a profit. Such profit, of course, is dependent upon an adequate market for alcohol and upon a satisfactory selling price and where these conditions are favorable, development of the industry will occur. Conditions have been favorable in Europe and the industry has grown from a single plant in 1909 to around twenty-five plants at the present time, whereas in this country the competitive position has not been so clear and so a corresponding industry has not developed.

Industrial alcohol in this country has been derived principally from two sources, synthetic production from ethylene and the fermentation of molasses. The former method is generally believed to produce the cheapest alcohol but the largest volume of industrial alcohol is at present obtained from molasses so taking the latter process as a basis for comparison seems justified. A general comparison of sulfite alcohol to molasses alcohol manufacture brings out one important difference. The process of manufacturing is almost identical with either material but the difference lies in the difference in concentration of sugar in the two raw materials. Because mo-

lasses is a concentrated solution of sugars, it can be cheaply transported to an alcohol plant site favorably located with respect to the alcohol consuming centers and there be processed at optimum concentration for lowest production costs. Sulfite waste liquor, on the other hand, has such a low concentration of sugars that it cannot be economically transported to more favorable territory and its larger volume increases the cost of handling. The prospective sulfite alcohol manufacturer, therefore, is faced with balancing higher manufacturing costs and higher shipping costs against his advantage in lower raw material cost. These factors being difficult to evaluate and especially difficult to project into the future have not lent sufficient inducement to the manufacturer of sulfite pulp for the building of plants.

The advent of the war, however, brought about a sudden demand for tremendous amounts of alcohol for the munitions and synthetic rubber industries. At the same time supplies of molasses were shut off for lack of shipping space and so the government was forced into the use of grain as a raw material. Under these circumstances it is natural that attention turned towards the use of more abundant and less expensive raw materials, the most promising of which was sulfite waste liquor. As a result a plant was constructed and has been operating these past seven

months at Bellingham producing alcohol for the war effort.

Since this is the first commercial plant of its kind on the Pacific Coast a description of the process will perhaps be of interest to this meeting.

Process

The process in general is simple. Yeast is added to prepared sulfite waste liquor and during the subsequent fermentation, alcohol is produced which is separated, concentrated, and purified to yield the finished product. Process flow is comprised of the following steps:

1. Recovery and collection of the sulfite waste liquor.
2. Preparation of the sulfite waste liquor for fermentation.
3. Addition of yeast and fermentation.
4. Separation of yeast from the fermented liquor for reuse.
5. Distillation.
6. Warehousing and shipping.

Recovery and Collection of Liquor

The first step of the process is recovery and collection of the sulfite waste liquor. The aim is to recover as much liquor as possible with a minimum amount of dilution. This would best be accomplished using counter current washers but cir-

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cumstances dictated the use of existing equipment so a procedure was worked out which has been entirely satisfactory.

The liquor was collected at the blowpits. These are round wooden tanks 36 feet in diameter, equipped with the usual perforated stainless steel bottoms. By simple drainage, about half of the liquor is recovered. The rest of the liquor clings to the fibers and is recovered by displacing with wash water showered over the pulp. It is obviously important that channeling of the wash water does not occur, so the blowpits are padded to a depth of 4 feet with sulfite waste liquor to obtain uniform distribution of the pulp over the bottom during the blowing of the digester. Completion of drainage is accomplished by a rapid drop in temperature due to the cold wash water and this change in temperature is transmitted to a temperature controller which automatically closes the drain valve. The sequence of recovery operations is: padding the blowpit with liquor, blowing the digester, allowing the pulp to settle, draining, adding wash water, and continuing the drainage until the wash water begins to break through, whereupon the temperature drop automatically stops the process.

By following this procedure there is obtained over 2,000 gallons of sulfite waste liquor per ton of pulp at an average temperature of 92 to 93° C. having approximately 1.05 specific gravity, 2.2 pH, 120 g. p. l. of total solids, 2 g. p. l. of free sulfur dioxide, 4 g. p. l. of loosely combined sulfur dioxide and 18 g. p. l. of fermentable sugars.

This collected liquor is pumped to an overhead tank of measured volume for priming the blowpits. From this tank it overflows by gravity to a storage tank.

Preparation for Fermentation

The second step of the process, preparation of the liquor for fermentation,

deals with conditioning of the liquor to satisfy the physiological requirements of the yeast cells. The liquor from the blowpits contains sulfur dioxide which is a yeast poison. It is also quite acid and much too hot. Preparation consists of: (1) sulfur dioxide removal, (2) adjustment of acidity, and (3) cooling the liquor.

Removal of sulfur dioxide is accomplished by stripping the liquor with steam. In the laboratory the liquor is simply boiled on a hot plate but in the plant a plate column with countercurrent flow of steam and liquor is used for better efficiency and economy. The column is approximately 8 feet in diameter by 45 feet tall, fabricated of stainless steel to the general pattern of a distillation column having 20 plates. Liquor enters at the top and steam at the bottom. Sulfur dioxide and steam are discharged out the top and are salvaged by injection into the digester cooking acid. The sulfur recovery amounts to around 20 pounds of sulfur per ton of pulp and offsets the cost of steam requirements. The composition of the sulfite waste liquor discharged at the bottom varies depending on the steam input. Stripping results in complete removal of the free sulfur dioxide and part of the loosely combined. The pH of the stripped liquor varies between 3.8 and 4.2 depending on the grade of pulp being cooked. Although the column is equipped with process control instruments to automatically deliver a product of constant pH, it is normally operated at a fixed steam-liquor ratio which at present is one pound of steam per two gallons of liquor feed. Part of the heat input is recovered in the cooking acid. The sulfite waste liquor from the base of the stripping column is pumped to the alcohol plant building for continuation of liquor

preparation.

The acidity of the sulfite waste liquor can be sufficiently reduced by stripping alone to make further treatment unnecessary but for best economy it usually proves desirable to add lime. The lime is added as a 10% water slurry injected into the sulfite waste liquor at a point just ahead of the coolers. The equipment consists of an outside lime storage bin, two agitated lime slurry tanks, and the necessary pump. A pH controller regulates the amount of lime addition. The sulfite waste liquor is adjusted to 4.5 pH for fermentation. The quantity of lime averages about 3 lbs. of lime per 1000 gallons of sulphite waste liquor treated.

After lime addition, the liquor is cooled to a temperature of 32° C. Cooling is accomplished by evaporation under high vacuum as this method has the advantage of concentrating the liquor at the same time that it is being cooled. Also additional amounts of sulfur dioxide are eliminated. Concentration is in the order of 12% which results in proportional reduction of costs during the subsequent steps of processing. The equipment consists of two flash tanks each with a barometric condenser and steam ejector for producing vacuum. The first flash chamber operates at a vacuum of about 26" Hg. The liquor enters at a temperature of about 105° C. and a part is flashed into steam whereby the remainder of the liquor is cooled and leaves the flash chamber at a temperature of around 50° C. The steam vapors are carried upward to be condensed by the barometric condensers. Inert gases are withdrawn by steam ejectors from the barometrics which serves to maintain the vacuum. The 50° C. liquor then enters the second flash chamber where the process is repeated at higher vacuum and 32° temperature is reached. The flash chambers are round stainless steel tanks with conical bottoms about 8 feet in diameter by 15 feet tall. The liquor enters tangentially at a point near the top and spins around the walls to be pumped out at the base. Temperature control is related to the degree of vacuum and to the temperature of the water in the barometric condensers which is determined by the rate of water flow. Process control instrumentation based on these relationships maintain simple and accurate control over the product temperature.

The cooled liquor is pumped over inclined wire screens to remove fibers which might later in the process plug the yeast centrifuges and

Puget Sound Pulp Mill Secures Peace Time Market for Alcohol

Eastern industry has contracted for the output of the ethyl alcohol plant of the Puget Sound Pulp and Timber Co. in, Bellingham, Wash., assuring continued operation, Vice President Lawson P. Turcotte had advised P&PI.

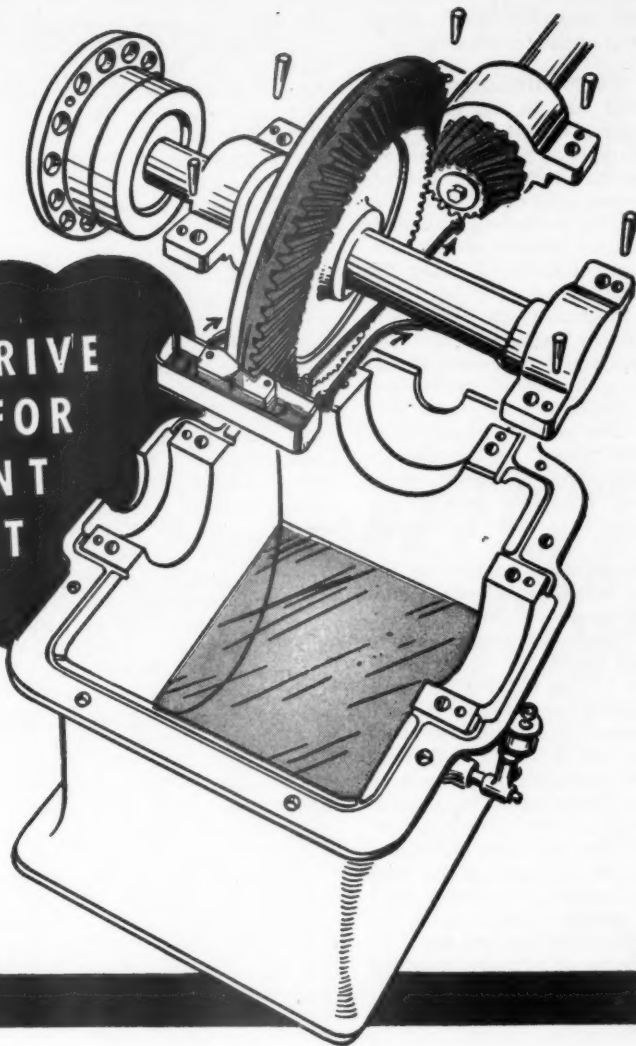
The U. S. Defense Supply Corporation canceled the plant's contract, under which the government took the entire output. The plant, using sulphite waste liquor from the pulp mill, has been making 6,000 gallons

daily since it opened last spring for use principally in the manufacture of synthetic rubber.

Mr. Turcotte did not disclose the identity of the eastern parties to the new contract, but said the alcohol would be used for general industrial purposes.

The Puget Sound Pulp and Timber Co. has been leasing the plant from the government, but will negotiate soon for its purchase.

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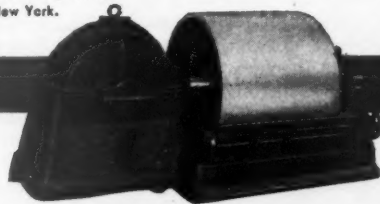
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it is then deposited into storage tanks ahead of the fermenters.

Fermentation

The third step in the process is fermentation. This step differs from the usual type of process encountered in the pulp industry in that living organisms are dealt with. The yeast used for producing alcohol is of the ordinary baker's variety, *saccharomyces cerevisiae*. To start the plant, an initial quantity was procured for inoculating the system and since then the required yeast has been grown in the fermenters simultaneously with alcohol production. Optimum conditions for both fermentation and growing yeast are, of course, determined by the physiological requirements of the yeast cells. These conditions include nutrients, growth substances, temperature and pH. From 0.5 to 1.0% of yeast by volume is carried in the fermenters which amounts to a total quantity of around 25 tons of yeast. The temperature for fermentation is between 30° to 35° C. and the pH is between 4.3 and 4.7. Sulfite waste liquor apparently possesses all the factors necessary for sustenance of the yeast except for a deficiency of nitrogen necessary for growth of new cells. The nitrogen is supplied in the form of urea, although ammonia or other nitrogen containing substances may be used. It has even been found possible to operate over extended periods without the addition of nutrients of any sort but normally a source of nitrogen is added in small amounts to induce yeast growth.

Fermentation is carried out in eight interconnected fermenters of 80,000 gallons capacity each. To the liquor being pumped from storage is injected measured proportionate amounts of urea and yeast. The liquor enters the first fermenter, overflows into the second and so on through to the last fermenter whereupon fermentation is complete. From 70% to 80% of the fermentable sugars are fermented in the first two fermenters and about 95% of the sugars are fermented in the complete cycle. Fermentation time has been varied between 12 and 20 hours. This short fermentation time can be partly attributed to the adequate mixing provided in the fermenters which keeps the yeast cells in suspension and eliminates carbon dioxide produced during fermentation, and partly to the fact that the yeast is acclimatized through reuse. The aim of fermentation is to obtain the most complete utilization of sugars for conversion into alcohol and short fermentation time contributes to this

in that less food is required for maintenance of life of the yeast. Acclimatization of the yeast is another factor, as well as pH, temperature, and yeast concentration.

Control of fermentation consists of regular measurement of sugar concentration of the liquor entering and leaving the fermenters and the alcoholic content of the fermented liquor. The yeast is examined daily under the microscope for viability and cell count.

Separation of Yeast and Reuse

The fourth step of the process is separation of the yeast from the fermented liquor for return to the liquor entering the first fermenter. This separation is performed in seven stainless steel De Laval centrifuges similar in construction to cream separators. Fermented liquor from the last fermenter is pumped to a head tank which distributes liquor to each of the centrifuges at a regulated rate of flow. The fermented liquor containing about 1% yeast by volume is split into two streams, one containing approximately 15% yeast by volume and the other 0.02%. The yeast concentrate is returned to the fermenters and the clear liquor flows to storage tanks. Part of the fermented liquor is bypassed around the centrifuges for the purpose of continuously purging the fermenters of yeast and solids which might otherwise accumulate in the system and also for the purpose of promoting new yeast growth.

Distillation

The fifth and last step of actual processing is distillation of the fermented liquor to obtain the finished alcohol. Distillation accomplishes the three-fold purpose of stripping the alcohol from the fermented liquor, concentrating it to the required proof, and purifying it by removal of the volatile contaminants. Alcohol is an exceedingly pure chemical so primary emphasis in equipment design was placed on meeting the exacting specifications for first quality product. Equipment design was also concerned with obtaining most complete recovery of alcohol and utmost economy of steam usage. These latter have especial importance because of the low concentrations of alcohol in the liquor to be distilled. Steam requirements for distillation are proportional to the total volume of liquor being processed rather than the amount of alcohol produced so in the case of sulfite waste liquor wherein the alcohol concentration averages a little over 1% it is of par-

ticular importance that the distillation equipment be efficient and economical.

The first step in distillation is stripping the alcohol from the liquor in the manner previously described for the removal of sulfur dioxide, however, for steam economy two stills are operated in parallel, one at a higher pressure than the other so that the heat content of the vapors from the pressure still may be utilized in the steam generator to produce low pressure steam for operation of the other stills. This feature, a patented process of the Vulcan Copper and Supply Company, designers and manufacturers of the equipment, results in substantial lowering of steam requirements. The vapors from these stills containing about 8% by volume of alcohol are treated with caustic soda to neutralize and eliminate the acids and are then introduced into the base of the rectifying column wherein concentration of the alcohol occurs. Fusel oil, comprised principally of the higher boiling alcohols such as amyl and isobutyl alcohols, accumulates on intermediate plates in the column and is continuously withdrawn to an oil washer wherein it is washed free of alcohol and then is deposited into storage in amounts of about 10 gallons a day.

Alcohol concentrated to 192 proof in the top of the rectifying column is withdrawn to the purifying column wherein the volatile contaminants boiling at temperatures lower than alcohol are concentrated at the top and the alcohol product is removed at the bottom. The low boiling fraction drawn from the purifying column consists principally of methanol and aldehydes and amounts to about 175 gallons per day.

Warehousing and Shipping

The product alcohol is deposited into a bonded warehouse from where it is withdrawn for shipment. All shipments have been in tank car lots, the alcohol being loaded directly to railroad cars by pumping. All alcohol until September 1 was contracted for and was allocated by the Defense Supplies Corporation. With termination of that contract the alcohol is now flowing into normal peacetime channels of trade.

General Comments

The Puget Sound Pulp & Timber Company as agents for the Defense Plant Corporation undertook construction and operation of this plant only after considerable preliminary



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of SULPHUR**

**SOME OF THE PRODUCTS
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ACIDS	LUBRICANTS
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FABRICS	PRODUCTS
FERTILIZERS	PLASTICS
FILM	PROCESSED FOODS
FOOD PRESERVATIVES	REFINED METALS
FUMIGANTS	REFRIGERANTS
FUNGICIDES	RESINS
GASOLINE	RUBBER
GLASS	SYNTHETIC RUBBER
GLUE	SOAP
GLYCERIN	SODA
INSECTICIDES	SOLVENTS
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Sulphur is serving the rubber industry...from manufacture of rayon threads to vulcanization...making tires for vehicles of war and peace...manufacturing rubber for hundreds of uses in both home and industry.

Today, with our source of natural rubber cut off, American industries have been forced to depend upon synthetic rubber and here again Sulphur plays an important role...in fact, a 3-part role. Tires and articles made from Buna S, the major synthetic, use as much, or more, Sulphur in their production as natural rubber. As Sulphuric Acid, Sulphur helps to produce the butadiene for Buna. As acid, it coagulates the synthetic rubber from soap suspension solutions...and in its elemental form it vulcanizes the synthetic product.

The manufacture of rubber is but one of the many ways in which this invaluable mineral is aiding modern industry. Fortunately, Freeport's supply of this essential product is sufficient to fill all anticipated needs. Furthermore, large underground reserves combined with modern mining methods assure a steadily continuing supply.



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SULPHUR SERVES INDUSTRY



View taken at the 1945 annual sales conference of American Writing Paper Corp., Holyoke, Mass., in the general offices during the week of Oct. 1st. Chairman was James H. Sweet, vice pres. and manager of sales, assisted by J. G. McNaught, sales office manager.

Advertising plans were discussed by C. H. Cooley, advertising manager, and Shel Bradley, sales promotion manager. P. Freedman, vice pres. and comptroller, and W. J. Norton, treasurer, also addressed the meeting.

Climax of the conference was a talk from E. C. Reid, vice pres. in charge of mfg. who later conducted the salesmen through the mills.

study and investigation had been made of the technological aspects of alcohol manufacture and a satisfactory process had been developed for this particular plant. These studies resulted in differences in the process of this plant compared to European practice as known from the literature. Such differences might include: continuous flow throughout, recovery of sulfur dioxide by steam stripping, low pH fermentation, flash cooling, and vapor reuse in distillation. Changes have been towards simplification of plant operation and lowering of production costs.

Production has been at the rate of 6500 of 190 proof ethyle alcohol per day or about 20 gallons per ton of pulp and it is expected that this yield will be somewhat increased in the near future. Production of pulp has in no way been changed to accommodate the alcohol plant nor have cooking procedures or acid composition been altered to increase alcohol yield. Although no effort has been made to control the quality of the liquor it has proven to be remarkably uniform in composition and a very satisfactory raw material for processing.

Considered at the present time, one will conclude that this plant for the commercial production of alcohol from sulfite waste liquor has proven satisfactory from both the technological and economic standpoint, but as wartime markets are a very unsound basis for determining economic feasibility of any project it will be well to reserve final judgment in this respect to the future.

Donaldson on Coast

W. H. Donaldson, secretary of Perkins-Goodwin Co., 230 Park Ave., New York City, made one of his short trips to the coast during October visiting mills in Washington, Oregon and British Columbia.

Yoerg Retires As President America Writing Paper Corp.

Leon M. Yoerg, president of American Writing Paper Corp., Holyoke, Mass., for eight years, has resigned for reasons of health.

Thomas H. Blodgett has assumed the office of president as well as his present post as chairman of the board.

Mr. Yoerg was born in South Hadley Falls, Mass., in 1881. He first planned a career in medicine. While working in a drug store he became acquainted with Charles Southworth, president of Hampshire Paper Co., who launched him on his paper career.

Alfred Watt Is New AWP Personnel Chief

Alfred Watt, formerly of Brown Co., Berlin, N. H., has been appointed personnel director of the American Writing Paper Corp., Holyoke, Mass., succeeding George Lippman.

Mr. Watt had been with Brown Co., pulp and paper manufacturers, at Berlin for 25 years. From 1920 to 1936 he was engaged in chemical work and sales promotion and development in the manufacturing department. He went to the employment department in 1936, becoming personnel director in 1930.

He served two years in the regional war labor board office in Boston on paper industry wage rates.

Industry Men Featured

A number of prominent men in the industry were featured in a panel on "Package and Packing for Commercial Export Shipments" at the recent national meeting of the Propeller Club of the United States at the Waldorf-Astoria, New York City.

Frederick S. Leinbach, assistant general manager for the Riegel Paper Company, was chairman, and his co-chairman was Herbert T. Holbrook, manager of the packaging materials of the Bulkley, Dunton Pulp Co., Inc. Among the speakers were J. D. Malcolmson, technical director, Robert Gair Company; and G. E. McCorison, vice president of Thilmany Pulp & Paper Company.

Dynes Joins H&WCo.

Charles J. Dynes has accepted a position with Hollingsworth & Whitney Co., according to an announcement made today by James L. Madden, President. Mr. Dynes will make his headquarters at the Boston Office, 60 Battery March Street.

Mr. Dynes has been on leave of absence from the Sorg Paper Co. to serve with the War Production Board. His resignation as Deputy Director of the Paper Division was effective on October 31, 1945.

St. Regis Men Visit Coast

R. L. Vayo, manager, Pulp Dept., St. Regis Paper Co., 230 Park Ave., New York City, and Ray Burgeon, traffic manager of the same company, were on the coast in October at which time they visited the Pulp Division, St. Regis Paper Co. in Tacoma, Wash. They returned home via California and Kansas City.

Mr. Vayo recently joined the St. Regis Paper Co. as manager of the Pulp Dept. after spending a number of years in the allocation division of the War Production Board. Prior to that he was for a great many years connected with the Brown Company of Berlin, New Hampshire.

Irving McNair's Daughter Rejoins Her Husband

C. I. McNair, Jr., Vice-President in Charge of Mfg., of the Northwest Paper Co., Cloquet, Minn., and his wife, had the pleasure of providing a home during the war for their daughter and one-year old grand-daughter.

But now the former, Mrs. Barbara Eddy, has rejoined her husband at their Lake Forest, Ill., home. He was an officer on the U. S. S. Missouri and an aide to Admiral Halsey.

Mr. McNair's son, Dave was also a naval officer.

Oberdorfer, Jr., Returns

Lt. Max Oberdorfer, Jr., received his discharge from the Army Transportation Corps. on November 1, and on the same date, resumed his duties as plant engineer for St. Helens Pulp & Paper Co., St. Helens, Oregon.



QUALITY DYESTUFFS FOR PAPER

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Auxiliaries for pulp and paper mill use.

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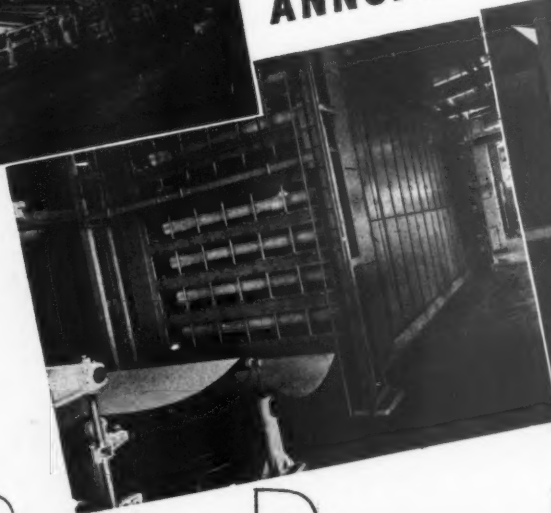
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PIONEER

OF THE WOOD PULP INDUSTRY IN THE PUGET
SOUND AREA, WHERE ONE-THIRD OF THE NATION'S
DOMESTIC SUPPLY OF SULPHITE AND ONE-FIFTH
OF ITS TOTAL WOOD PULP SUPPLY IS PRODUCED
ANNUAL CAPACITY 135,000 TONS



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DEVELOPMENT PROGRAMS FOR BAIE COMEAU AND THOROLD

The Chicago Tribune has announced plans for the expansion of its two paper mills, the Thorold mill of the Ontario Paper Co. and the Baie Comeau mill of the Quebec North Shore Paper Co. The development program is to cost approximately four and one-half million dollars and is to be completed in 1946. The greater portion of the expenditure is to be made at the Baie Comeau mill in the Province of Quebec.

It will be recalled that the Chicago Tribune first became interested in the manufacture of newsprint paper in 1912, when it founded the parent of the Canadian companies, the Ontario Paper Company, and constructed a newsprint mill at Thorold in Ontario. Since that time the Thorold mill has been expanded to include five newsprint machines with a total capacity in excess of 500 tons per day. The Thorold mill has always held the attention of technical people in the industry. It was the first all-electric mill. It has received a good deal of publicity in recent years for such developments as the complete conversion of its groundwood mill to the Roberts grinder and for the manufacture of industrial alcohol from waste sulphite liquor.

Since 1915 most of the pulpwood for the Thorold mill has been obtained from timber limits located on the north shore of the St. Lawrence River. When it became necessary to expand the company's activities investigations were made of the pos-

sibility of constructing a new mill near the timber limits rather than of expanding the original mill at Thorold. In 1936-1937, after a long period of investigation, the now famous Baie Comeau plant was constructed on the north shore of the St. Lawrence River in Quebec. The Baie Comeau mill was the only newsprint mill to be built in Canada after the 1929 "crash" and it was the first newsprint mill to be constructed in the remote North Shore district of the Province of Quebec. The mill has made a name for itself as a particularly modern, well-designed, and efficient plant. For some years now it has been noted for the high speed and efficiency of its paper machines. Its present capacity is in excess of 400 tons per day.

The current development program at Baie Comeau includes the speeding-up of the paper machines from current speeds of 1500 fpm to 1700 fpm. Provision is being made for an ultimate machine speed of 2000 fpm. Concurrently the groundwood and sulphite pulp mills are being expanded to take care of the increased production of the newsprint mill. The expansion of the pulp mills will be sufficient to leave a surplus of both groundwood and sulphite pulp in excess of the newsprint mill's needs. In order to make use of this excess capacity a modern screening and drying plant is being provided in which both groundwood and sulphite pulp will be converted into dry sheets suitable for sale in certain markets in the United States. Com-

plementary to this program for increasing the production of newsprint and for the manufacture of pulp for sale is the further development of the wood-yard, the water supply system and the paper storage facilities, details of which are described below.

Newsprint Machines

The newsprint machines at Baie Comeau are 262 inches wide. They were designed for a maximum speed of 1500 fpm. The machines were manufactured by the Dominion Engineering Company of Montreal. They are driven by sectional electric drives manufactured by the Harland Engineering Company of Alloa in Scotland. The machines have been operated for some time at 1500 fpm and tests have been made at speeds in excess of 1600 fpm, a speed which is, however, beyond the range of stability at present.

Fortunately, the machines require very little modification to enable them to run at 1700 fpm. It will be necessary to install additional screens and to increase the capacity of the fan pumps and related piping. It will be necessary to provide booster generators on the Harland motor-generator sets. The booster generators will have sufficient capacity to allow the drives to operate at machine speeds up to 2000 fpm, and to increase the range of stability to that extent.

It will be necessary to increase the capacity of the vacuum pumps at-

Baie Comeau of the Quebec North Shore Paper Co.





Thorold Mill of the Ontario Paper Co., Limited.

tached to the suction couch rolls. The latter rolls are of the double-box type, in which a moderate vacuum (16") is maintained in the primary compartment for the purpose of sealing the sheet and removing the inert air in the roll shells, and in which a high vacuum (22") is maintained in the secondary compartment for the purpose of consolidating the sheet and giving it a relatively high wet strength before it becomes self-supporting in the draw between the couch and the press. These rolls have been found to be essential to safe operation at high speeds.

Other modifications to the machines involve the use of winders with automatic tension control apparatus and means for reducing the lost time between winding cycles. At speeds of 1700 fpm the time available for a reel of paper to be wound is only about 13 minutes and the emphasis upon minimum time loss in the winder cycle becomes most important. The winders and the apparatus referred to will be supplied by the Cameron Machine Company of Brooklyn in New York.

Pulp

The pulps to be prepared for sale at Baie Comeau are unbleached groundwood and unbleached sulphite of newsprint grade. Groundwood pulp will be taken directly from the existing groundwood mill circuit after the thickeners and will be formed into sheets and dried in a combination Kamy machine and Flakt dryer. The sulphite pulp will be removed from the existing circuit after the coarse screens and will

be subjected to further treatment on rifflers and flat screens, the rejects from which will be returned to the newsprint circuit. Following the screening operation the pulp will be formed and dried on the Kamy-Flakt machine referred to above.

Because the latter machine will work alternately on groundwood and sulphite, provision will be made for the storage of these pulps. In the case of the groundwood, storage will be provided in tile-lined concrete chests agitated by means of propeller circulators. In the case of the sulphite, storage will be provided in an agitated chest preceded by a wood-stave tank with a drainer bottom. The relationship between the rate of supply and the rate of conversion on the Kamy machine makes this combination suitable.

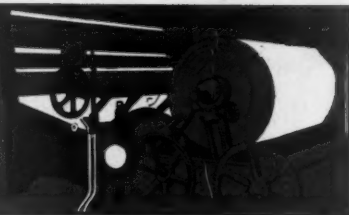
Equipment in the sales pulp screen room on the sulphite circuit will consist of concrete rifflers lined with Johns-Manville "Chemstone" and provided with longitudinal baffles to insure laminar flow. The rifflers will be followed by Waterous direct-action flat screens arranged in lines of twenty-four plates each. The screens themselves will be modifications of the conventional type inasmuch as the drive will consist of two eccentric shafts geared together with the reciprocating mechanisms attached to the quarter-points of the screen diaphragms in such a way that the diaphragms will remain horizontal in all positions of the stroke. Special attention will be given to the arrangement of head-boxes and approach channels in order to insure a high output and a high degree of cleanliness for the

stock.

Accepted stock from the fine screens will be thickened in slush-type thickeners supplied by the Wood Pulp Machinery Company of Toronto. The thickened stock will be pumped to a wood-stave storage chest with a drainer bottom where it will be stored at relatively high consistency. When required for the machine it will be diluted and removed from the chest by means of monitors. It will pass through an agitated tile-lined chest before being pumped to the machines. The chest circulators will be of the Stadler propeller-type manufactured by the Port Arthur Shipbuilding Company.

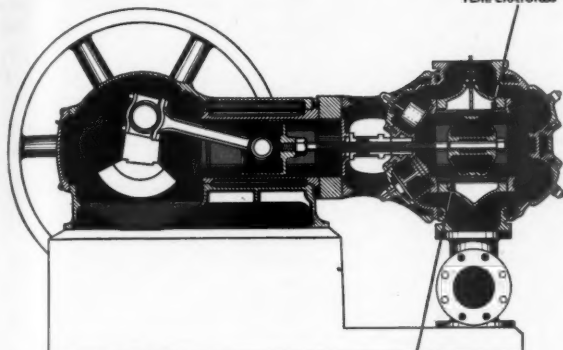
Either groundwood or sulphite pulp will be fed to the machine through a Waterous C. E. Consistency Regulator. The Kamy machine, which will have a working width of 120", will consist of the new perforated-shell type sheet-forming machine followed by two feltless presses with pre-dryers placed between them. The presses will be equipped with Foxboro pneumatic loading. Following the second press the pulp will be dried in a horizontal type Flakt dryer and will be slit and cut to length in a PML Cutter. The whole of the machine will be supplied by Paper Machinery Limited of Montreal and will be manufactured by Canada Iron Foundries of Three Rivers, Quebec. The machine will be driven by a Harland electric multi-motor drive supplied by Bepco Canada Limited. Following the cutter, sheets will be baled on Mathews baling equipment and a Baldwin-Southwark hydraulic press, manufactured by the United

STANDARD ENGINEERS NOTEBOOK



CALOL COMPRESSOR OILS
WITHSTAND EXCESSIVE PISTON WEIGHT

CALOL OILS FORM
TOUGH FILM THAT
RESISTS HIGH
TEMPERATURES



MADE STRAIGHT OR
COMPOUNDED TO MEET
ALL CONDITIONS

EXTREMELY STABLE
AND HAVE LOW
CARBON-RESIDUE TESTS

SINGLE-STAGE AIR COMPRESSOR WITH OIL-TIGHT CRANKCASE

Special oils up air com- pressor efficiency

Many operators have increased air delivery from compressors by lubricating cylinders with specially-made Calol Compressor Oils.

To meet both dry and moist operating conditions, in all type compressors there are two grades. Both withstand high pressures and temperatures.

Calol Compressor Oil—19 is a straight mineral oil. Pale in color, it is very stable and correctly lubricates under pressures up to 150 pounds per square inch.

Calol Compressor Oil—19X is compounded and completely resists the washing action of moist air on the cylinders of machines operating in humid surroundings. It is particularly adaptable to large horizontal compressors, where piston weight is a factor, and to compressors on air-injection Diesel engines.

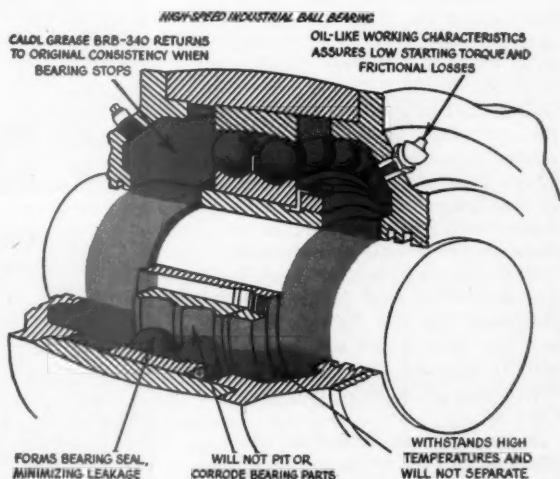
Standard Fuel and Lubricant Engineers are always at your service. They'll gladly give you expert help — make your maintenance job easier. Call your local Standard Representative or write Standard of California, 225 Bush St., San Francisco 20, California.

New Calol grease softens and resets

Where anti-friction bearings operate in severe conditions of temperature and speed, newly developed Calol Grease BRB-340 allows easy starting and reduces running friction to a minimum. At high shear rates, its apparent viscosity approaches that of its oil component. However, undue leakage from bearings is prevented by the peculiar ability of Calol Grease BRB-340 to reset, which causes the excess grease, swept aside by balls and rollers, to form a partial seal.

Calol Grease BRB-340 is soft, smooth and has a fine fibrous texture. It is milled by a special process that eliminates bleeding although it contains an unusual amount of oil stock.

When undergoing severe tests, Calol Grease BRB-340 showed no separation in a bearing operating 10,000 RPM at 200° F. for 528 hours. At the end of the test the bearing was in good condition.



HIGH-SPEED INDUSTRIAL BALL BEARING

CALOL GREASE BRB-340 RETURNS
TO ORIGINAL CONSISTENCY WHEN
BEARING STOPS

OIL-LIKE WORKING CHARACTERISTICS
ASSURES LOW STARTING TORQUE AND
FRICTIONAL LOSSES

FORMS BEARING SEAL,
MINIMIZING LEAKAGE

WILL NOT PIT OR
CORRODE BEARING PARTS

WITHSTANDS HIGH
TEMPERATURES AND
WILL NOT SEPARATE

FOR EVERY JOB A **STANDARD OF CALIFORNIA** TEST-PROVED PRODUCT



Construction work on digester building at Baie Comeau.

Steel Corporation. Baled pulp will be removed to storage by means of a Clark gasoline-driven tiering truck.

Broke from the machine will be repulped in a Hydrapulper manufactured by Alexander Fleck Limited of Ottawa. The Hydrapulper will be installed in a pit adjacent to the Kamyr mould.

Stock and white water piping throughout the plant will be of the spiral-welded type, lined with Lithcote, a thermo-setting plastic, supplied by the R. F. Walsh Company. Valves will be of the Saunders type for throttling service, and of the Crane gate type for isolation. Throughout the plant all equipment in contact with the stock will be coated with plastic material of either Lithcote or Heresite manufacture.

With the exception of press loading, recording and controlling instruments for the Kamyr machine and the Flakt dryer will be of Mason-Neilan manufacture supplied by the Mason Regulator Company of Canada.

Main floors in both the machine room and screen room will be served by overhead travelling cranes manufactured by the Herbert Morris Crane Company of Niagara Falls.

The sales pulp building, which will be approximately 280 ft. long, 76 ft. wide and 35 ft. high, will be of steel-framed construction on concrete foundations with brick and tile walls

and pre-cast "Aerocrete" roofs.

The machine room will be provided with a false ceiling, suspended from the roof trusses, consisting of a Robertson's steel deck covered on the underside with Johns-Manville asbestos millboard. The ceiling will provide a plenum chamber under the roof which will form an integral part of the heating and ventilating system.

All supply air, whether fresh or recirculated, will pass through the plenum chamber thus making it impossible for condensation to occur on the ceiling surface. Approximately one-half of the air will be discharged to the room from Anemostats located in the ceiling. The remainder will be discharged at working level through grills located in each wall panel, supplied through wall ducts leading down from the plenum chamber. Means will be provided for recirculating a large portion of the machine room air during the winter time, and for exhausting double the normal amount of air during hot summer weather. By this means both winter heating and summer cooling will be provided.

The screen room will be heated and ventilated by means of Anemostats supplied by ductwork in the conventional fashion. The whole of the heating and ventilating system will be supplied by Ross Engineer-

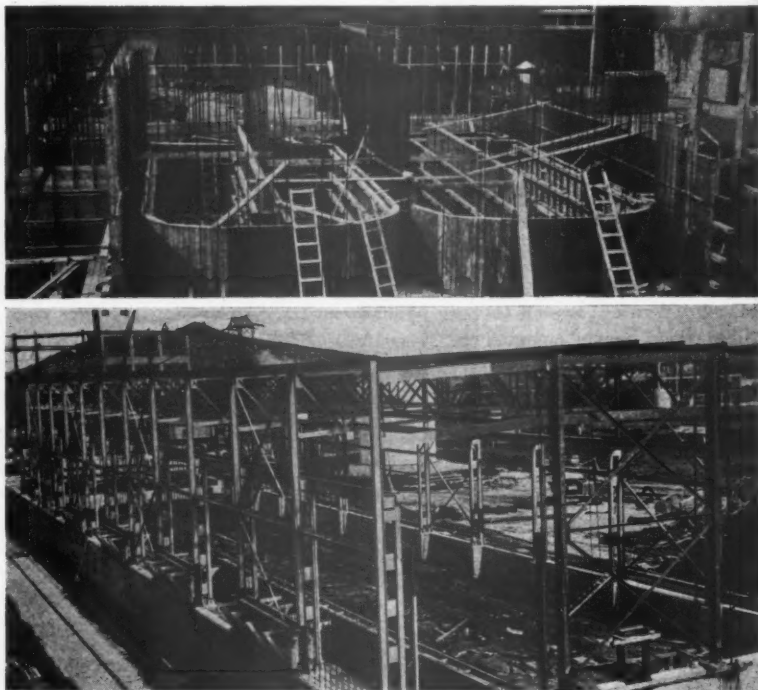
ing of Canada.

Additional pulp mill capacity at Baie Comeau will be provided by the installation of two Waterous hydraulic magazine grinders exactly similar to those already in use. These machines will be installed upon existing foundations in the groundwood mill. The sulphite mill will be provided with one additional digester exactly similar to the two already in use. Building extensions will provide for a fourth digester at a later date. In both groundwood and sulphite mills additional screens, thickeners, and auxiliaries will be installed.

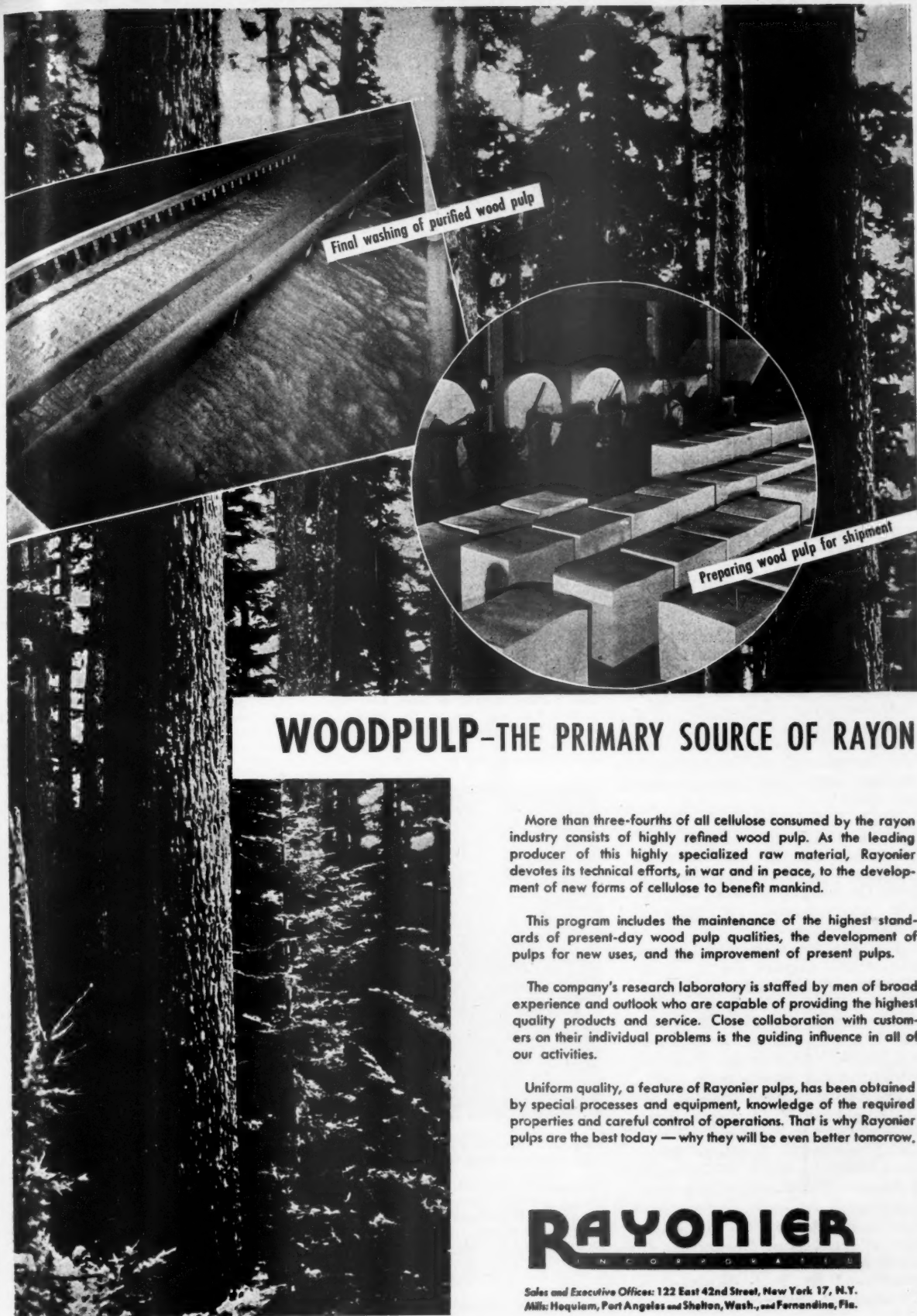
In the wood-yard, conveying and other equipment has been installed for a third wood pile and the operation of the yard will be such that one season's wood may be separated from another's in such a way that dry wood from previous seasons may be sent to the sulphite mill and wet wood from the current season to the groundwood mill. Better control of pulp quality is expected from this arrangement.

An additional pumping unit will be installed on the Lac LaChasse water supply system and some 1700 ft. of wood-stave pipeline will be replaced by welded steel and wood-stave pipe of larger diameter.

Because the St. Lawrence River is frozen for four months of the year



Upper—Thorold Sales Pulp Plant, Ontario Paper Co., showing form work and reinforcing steel for stock chests.
Lower—Structural steel in course of erection.



WOODPULP—THE PRIMARY SOURCE OF RAYON

More than three-fourths of all cellulose consumed by the rayon industry consists of highly refined wood pulp. As the leading producer of this highly specialized raw material, Rayonier devotes its technical efforts, in war and in peace, to the development of new forms of cellulose to benefit mankind.

This program includes the maintenance of the highest standards of present-day wood pulp qualities, the development of pulps for new uses, and the improvement of present pulps.

The company's research laboratory is staffed by men of broad experience and outlook who are capable of providing the highest quality products and service. Close collaboration with customers on their individual problems is the guiding influence in all of our activities.

Uniform quality, a feature of Rayonier pulps, has been obtained by special processes and equipment, knowledge of the required properties and careful control of operations. That is why Rayonier pulps are the best today — why they will be even better tomorrow.

RAYONIER

INCORPORATED

Sales and Executive Offices: 122 East 42nd Street, New York 17, N.Y.
 Mills: Hoquiam, Port Angeles and Shelton, Wash., and Fernandina, Fla.

all pulp and paper manufactured during that period must be stored. The existing paper storage warehouse, which is 560 ft. long, 160 ft. wide and 56 ft. high, will have its capacity increased by one-half. Provision for doubling the size of the warehouse was made in the original design. The warehouse is an unheated building of steel-framed construction with concrete floors and foundations, asbestos-cement walls, and a pre-cast "Aerocrete" roof.

At Thorold the development program includes the speeding-up of the paper machines and the construction of a Sales Pulp Plant. Each of the five paper machines will be provided with Dominion Engineering double-box suction couch rolls exactly similar to the rolls which have proved to be so successful at Baie Comeau. The necessary vacuum pumps for the new rolls will be supplied by the Nash Engineering Company of Canada. The Sales Pulp Plant at Thorold will be very similar to the plant at Baie Comeau except that it will have a somewhat greater capacity and will be used for sulphite pulp only.

At Baie Comeau all building construction is being carried out by the Foundation Company of Canada, who were responsible for all the original construction at Baie Comeau including the mill, the power plant at Outardes Falls, and the townsite. Sub-contractors include The Dominion Bridge Company who are supplying the roof decks, and Roofers Incorporated of Montreal who are installing Barrett roof coverings throughout.

At Thorold the building contractors are Aiken and MacLachlan of Merritton, Ontario. The principal sub-contractors are the Standard Steel Company of Welland, Ontario, who are supplying all structural steel and steel details.

The men in charge of construction at Baie Comeau are Mr. R. E. Williams, Field Engineer, Mr. J. Bodtker, Resident Engineer, and Mr. J. H. Wilson, Electrical Engineer. Mr. J. McKay and Mr. D. Foss are the Foundation Company's Superintendent and Engineer, respectively.

The men in charge of construction at Thorold are Mr. J. Fahey, Plant Engineer, Mr. R. Keating, Field Engineer, and Mr. W. L. Eliason, Electrical Engineer. Mr. J. W. Jacobsen is Aiken and MacLachlan's engineer.

All development work of this nature is handled by the company's Central Engineering Department of which Mr. M. H. Jones is Chief Engineer and Mr. P. R. Sandwell is Development Engineer.

HERE'S HOW M. & O. PAPER CO. DOES ITS PUBLIC RELATIONS JOB



L. A. FURLONG, veteran sales executive of Minnesota & Ontario Paper Co., is now Director of Public Relations for that company. His work in this new field already has won praise from a public relations periodical.

Donald D. Davis, president of Minnesota & Ontario Paper Co., could just as easily have reached into the "high-powered" metropolitan press or public relations fields to pick a man to do the public relations job for M & O.

But he decided against this procedure and, instead, picked a man who had worked his way up in the ranks of M & O over many years and who had the principles and objectives of the big mid-Western company virtually "in-

grained" in him—and at least, didn't have that part of his job to learn, maybe the hard way. Here may be an idea that other companies could profit by.

The man who has been carrying on the job of director of public relations for M & O for several months now is L. A. Furlong, who for 12 years had been director of publisher newsprint sales for the company. He is continuing his close contacts with newspapers.

Already Mr. Furlong has won high praise from a public relations executives' magazine. He was too modest himself to mention this, but his secretary in Minneapolis showed it to a PULP & PAPER INDUSTRY editor. The magazine cited the fact that Mr. Furlong's news releases about M & O stressed employment opportunities, long range forestry planning, and community responsibility in mill towns. They were directed primarily to the towns in which M & O mills are located.

Talks by company executives, experts in different fields, in small towns in the mills' vicinities, and educational institutional advertising are features of the program being carried on by Mr. Furlong.

Born in Milwaukee, Mr. Furlong moved to Minneapolis in 1911 and became engaged in the pole and tie business. In 1926, the company he was then with became an M & O subsidiary. In 1933, he took over publishers' sales.

In 1943, he was chairman of the Minnesota Forests Industries Committee and the next year was appointed by Governor Thye to the Keep Minnesota Green organization. It was this work by Mr. Furlong which won the attention of Mr. Davis, during the time that he was Donald Nelson's right hand man in WPB and while he was president of General Foods—long before he was elected to head M & O.



Veteran of West Linn paper mill of Crown Zellerbach Corp., **GEORGE H. HOWELL** receives C-Z Retirement Fund Check No. 1 from Resident Manager **C. E. BRUNER**.

Distinction of receiving Check No. 1 (one) from the recently instituted Crown Zellerbach Retirement Fund went to George H. Howell, 902 Fifth Street, Oregon City. Mr. Howell has been in the service of the West Linn plant for 45 years and at retirement was a beater room foreman.

Due to the historical significance of

Check No. 1 having been issued to a veteran of the pioneer West Linn paper mill, personal presentation was made to Mr. Howell by Resident Manager C. E. Bruner, himself a veteran of more than 47 years of continuous service with Crown Zellerbach and predecessor companies.

How to Get More out of Your Chemicals

By maintaining constant vigilance in manufacturing and shipping uniformly high quality chemicals, we have endeavored to serve the pulp and paper industry. You can always depend upon Hooker for the quality you want in pulp and paper chemicals.

Another way that Hooker has been helping pulp and paper makers is through the services of its Technical Staff. The close cooperation of Hooker chemists with pulp and paper makers is well known in the industry. The results of this relationship are found in the technical papers and bulletins Hooker has printed and offers to all those interested. These bulletins suggest the way to improved processes, greater economies and higher quality production for you.

They cover many phases of your operations and should be of value to your present operations as well as for your post-war planning. Some of the Hooker bulletins of interest to the paper industry are listed below. Copies will be sent you when requested on your letterhead.

HOOKER BULLETINS

BULLETIN 201—Process and Equipment for Making Bleach for Use Without Settling.

BULLETIN 208—Prevention of Suck-backs in Chlorine lines.

BULLETIN 211—Chemistry of Bleaching Chemical Wood Pulps.

BULLETIN 234—Lime-Chlorine System in Preparation of Calcium Hypochlorite.

BULLETIN 236—Importance of pH and Catalysts in Bleachery Operations.

BULLETIN 241—Bleaching Gumwood Sulfate Pulp.

BULLETIN 242—Production and Use of Unsettled Bleach Liquor.

BULLETIN 243—Procedures and Brightness Grades in Bleaching Sulfate Pulps.



HOOKER ELECTROCHEMICAL COMPANY

2 Union St.

NIAGARA FALLS, N. Y.

New York, N. Y.

Wilmington, Calif.

Tacoma, Wash.

Caustic Soda

Chlorine

Muriatic Acid

Sodium Sulfide

Bleaching Powder

8434

HOOKER CHEMICALS

Development of New Instruments To Evaluate Paper Surfaces for Printing

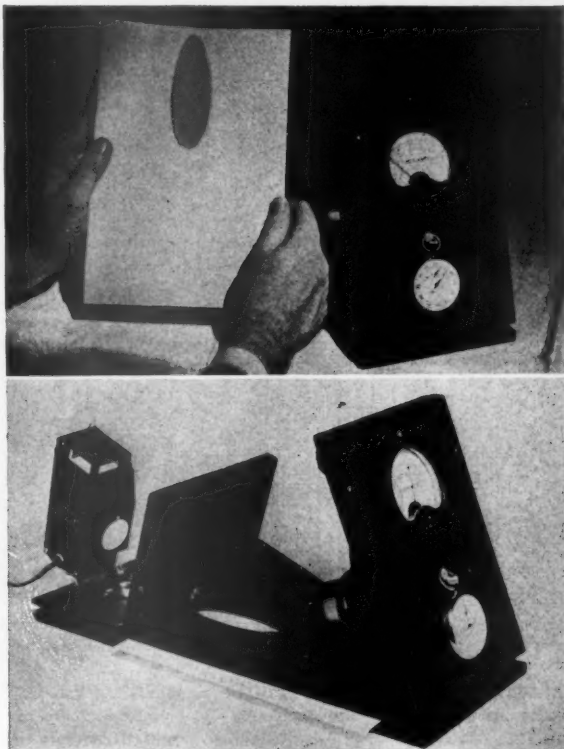


VANCE V. VALLANDIGHAM, Chemist, Kelco Co., demonstrating equipment he devised for evaluating paper surfaces for printing.

At upper left, he holds oil dropper and steel roller is shown which casts oil film on paper.

At upper right, the oil spot on paper is shown.

At lower right, full view of the photoelectric absorption meter.



Most paper is used for printing. But there seems to be less information on the evaluation of paper surfaces for printing than on any other major subject in the pulp and paper industry.

The fine, new laboratories being built by Time, Inc., at Kalamazoo; by Kimberly-Clark at Neenah, and by Minnesota & Ontario Paper Co. at International Falls—as well as the older research institutions—are probably going to uncover a great many facts in the comparatively near future that will help the papermaker, the ink maker, the press maker, the engraver and the printer to get along a lot better than they have in the past.

But meanwhile, Vance V. Vallandigham, chemist, Kelco Co., 75 E. Wacker Dr., Chicago (1), who is also secretary of the Chicago Professional Paper Group, an aspiring-to-be or embryo TAPPI organization, has come forth with some tools which he thinks may assist manufacturers of paper to determine whether their paper meets specifications for printing purposes.

The tools he developed are shown in photographs and a drawing on

these pages. They can be easily duplicated by anyone who wishes to use them. He doesn't claim that they answer all the questions, but they may help a paper mill to consistently produce the same paper for printing. Thus, a papermaker may be safeguarded from unwarranted criticism from the printer, the ink maker, etc., who so often seem prone to "pass the buck" back to the paper mill when something goes wrong.

Mr. Vallandigham explained his mechanism and the results obtained with it, at the Oct. 15 meeting of his Chicago organization. On Oct. 18, he made a similar address and demonstration before the active Superintendents Association division at Kalamazoo, Mich. (both meetings attended by PULP & PAPER INDUSTRY staff editors).

The Kelco Co. makes a line of sodium alginates used as calendar and tub sizing, and it was while studying sizings that Mr. Vallandigham was struck by the fact that all the old tests for valuation of paper surfaces for printing were faulty or unreliable.

The butyl carbitol test varied with

atmospheric humidity. The ink smear test would give a changed reading with a change in Ph. The ordinary reflectance meter was reliable for brightness but reflected color.

Here's the way Joe Kubicka, assistant superintendent and chief chemist, Container Corp. of America, Water St. plant, Chicago, stated the problem, when he introduced Mr. Vallandigham at the Chicago meeting:

"It has long been known that surface conditions of paper or paperboard are of vital importance to the quality known as printability. The value of a test which will measure this surface property, rather than evaluate the entire sheet, can readily be appreciated; such a test will enable the papermaker and converter to speak a common language and set up standards for the various types of printing.

"Mr. Vallandigham will describe and demonstrate the photo-electric absorption meter which he has developed to meet this need. Not only will this program appeal to those in the graphic arts division of our industry, but anyone concerned with the application of a film-forming

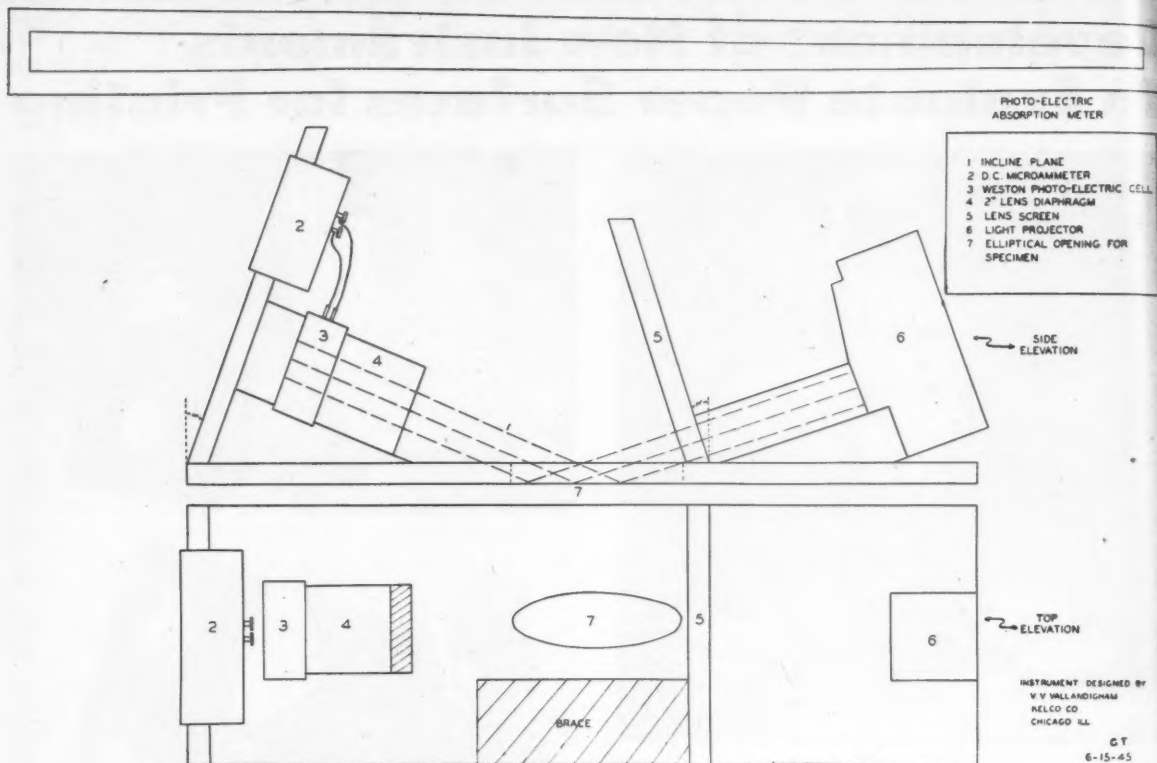


DIAGRAM OF EQUIPMENT devised by Vance D. Vallandigham for evaluating paper surfaces for printing.

material to a paper surface will be vitally interested by the presentation."

What Mr. Vallandigham does is to simply combine the use of a gloss meter with an 8-lb., 4-in. wide steel roller, an oil dropper and a $1\frac{1}{2}$ degree-inclined plane. The paper is placed on the inclined plane surface and with the dropper and roller, he casts a film of mineral oil on the paper. Thus, he has a definite and uniform method of casting a film on the paper. The inclined plane is used so that the roller, which casts the oil, will travel at a uniform rate of speed. He can thus duplicate the depth of the oil film on any given sheet. He then uses a beam of light at a 22 degree angle of incidence for his calculation.

The gloss meter and other equipment consists of:

1. A light source.
2. A heat filter which blocks infrared rays.
3. A baffle to remove diverging rays. Light strike's the sheet surface and is reflected through the baffle.
4. An iris diaphragm. The reflection passes through this, which controls the reading from 100—the highest possible gloss—downward. (This, he said, is preferred to a voltage control.)
5. A Weston photocell, which

picks up the light.

6. A zero to 100 microammeter, which records the reading. It has a 100-microampere movement.

The readings are taken at 10-second intervals. As the oil strikes into the sheet, the 100% reflection of light decreases. This decreased reflection is in ratio to absorption of the oil. The decrease is plotted against the time periods. And there you have it.

The curve of the rate of penetration of oil into the sheet surface was demonstrated to be a logarithmic function. Various curves were plotted on logarithmic paper and found to be parallel straight lines showing the significant difference was at the initial point of penetration (that is, the weak point of the size of the sheet).

Thus the sheets can be given a numerical value. Some of those in the audience at both Chicago and Kalamazoo commented that this method thus eliminated the human element in determining the suitability of printing surface.

Mr. Vallandigham evaluates sizing on the basis of the weakest point—the weakest link in the chain. Under the old ink smear and oil drop methods, he pointed out, the "end point" was least significant.

His equipment is similar to that for testing viscosity of clay or ink

and almost any gloss meter could be used for the purpose.

As might be expected, his equipment and methods did not meet with 100% approval. There was quite a large delegation of ink and printing men at the Chicago meeting and PULP & PAPER INDUSTRY's representatives present observed that they decided there were some problems about suitability of printing paper that Mr. Vallandigham's instruments and methods would not solve.

The factor of smoothness also must be considered, they said. But the speaker stressed the point that he was making no claims to a measure of sheet roughness. And his defenders rose to state that he had a means that was satisfactory for measuring of absorption and affinity of ink. Smoothness, others insisted, is also a factor which determines the amount of ink required.

The fine paper and engraving field representatives were obviously not satisfied and they are convinced, apparently, that in their field the test of actual printing is the only reliable one. For fields other than fine printing, however, the Kelco chemist had plenty of warm supporters.

Incidentally, he admitted that his wife helped him manufacture part of his home-made equipment.

What does it cost TO BLIND A LINE?

THE HAMER WAY

Positive shut-off by 1 man
in 1 minute



THE OLD WAY

Several men from
20 minutes up,
plus other costs



*You can figure it
out yourself—*

4934 97

1796
2730

HAMER 3-BOLT LINE BLIND

New—positive—economical—full
opening. Send for bulletin with com-
plete engineering data and specifications.

HAMER
OIL TOOL COMPANY

2919 GARDENIA AVENUE
LONG BEACH 2, CALIFORNIA

HAMER LINE BLINDS



Geared Standard • Standard • A-Tek • Union Type • Ring Joint

HAMER NON-STICKING PLUG VALVES



Clamp Fitted • ASA 150 • ASA 200 • Gear Operated • Wrench Operated

Masonite To Enlarge Mississippi Plant

M. P. McCullough, president of Masonite Corp., has announced that his firm is ready to spend more than a million dollars enlarging its plant at Laurel, Minn.

The Masonite Corp. board of directors meeting in Chicago voted to expend the funds to increase production of pressed wood 30 per cent and to "greatly increase" the plant's capacity for tempering these products.

The board prepared for financing the project more than a year ago when it sold 62,000 shares of common stock and put the funds in escrow for the expansion of the Laurel plant.

J. W. Sears at Houston For Link-Belt Co.

The new district manager in Houston, Texas, for Link-Belt Co., is J. W. Sears who moved into his office there on Nov. 12. He had been district engineer for Link-Belt in Dallas, Texas.

His Houston address is 711 Main St., Southern Standard Bldg.

Ed Woods on Trip North

Edward P. Wood, assistant manager of the Hollingsworth & Whitney mill in Mobile, Ala., and his wife, Nell, have been on an extended trip north in the past month.

Mr. Wood went as far as Maine to visit the H & W mills at Waterville and Madison. The vacation part of the trip was at the home of Mrs. Wood's parents in West Virginia.

The Woods, who moved to Mobile from the west, are renting a house in the Spring Hill (college town) suburb of Mobile.



T. J. KENNEDY, newly appointed General Manager of Pacific Paperboard Co., Longview, Wash. Announcement was made by E. E. FLOOD, president, after election by the Board of Directors on Sept. 25th. He has been with the company 12 years, the last three as Secretary-Sales Manager. Kennedy is a member of the Board of Directors of Pacific Paperboard Co., Pacific Paper Materials Co., and the Pacific Coast Folding Box Association.



BENTON RUSSELL CANCELL who will arrive in Vancouver, B. C., in January, 1946, to assume his executive duties as vice-president of The Powell River Company.

Mr. Cancell resigned Oct. 10th as director of the Forest Products Bureau of the WPB, having had wartime jurisdiction over the lumber, pulp and paper, printing and publishing, and wood and fiber container industries of the U. S. In private life he was assistant to the president of the St. Regis Paper Co. Well known throughout the North American pulp and paper industry, he holds degrees of Bachelor of Science in Forestry and Master of Science from the University of Michigan.

St. Regis Paper Sells Skenandoa Rayon Corp.

St. Regis Paper Co. has relinquished control of the Skenandoa Rayon Corp., Utica, N. Y., through sale of the former's holdings of common stock in the rayon company to Beaunit Mills, Inc., of New York, it is announced by Roy K. Ferguson, president of St. Regis.

Terms of the sale were not revealed. It was reported that the sale involved a capital gain of about \$2,000,000 for St. Regis. Skenandoa shares were acquired by St. Regis in 1944.

The transaction was in line with St. Regis' plans to concentrate on its pulp, paper, bag, packing machine and plastics divisions, where plans for expansion are under way.

Crout is a Major

Glenn Crout, shipping clerk for Puget Sound Pulp and Timber Co., Bellingham, Wash., on leave with the United States Army, has been advanced from the rank of captain to major. Major Crout has been in the transportation section of the army ever since his appointment in 1942. He served in India throughout the war. At present, his duties have taken him to Shanghai, China.

Returns to Camas

Camas, Washington, mill of Crown-Zellerbach Corp., has welcomed back from the armed services its Registrar of Crown Willamette Paper School, Rodney Crosby, whose regular job is sample man in the technical department.

Crosby became a pharmacist's mate, 1st class, during his sojourn with Uncle Sam's Navy.

Newton Mill Will Add New Machine

Newton Paper Co., Holyoke, Mass., will be enlarged from a two to a three-machine mill following installation in the next few months of auxiliary speed-up equipment, according to James N. Logan, general manager and vice president.

This mill recently put into operation a hydropulper of the Dilts design. This is the second Dilts hydropulper in Holyoke, the other being at Riverside Division of American Writing Paper Corp.

The Newton mill has two cylinder machines now, making coated and other board, tube board, ticket-bristol, etc.

National Gypsum Leases Sonoco Board Mill

National Gypsum Company of Buffalo, N. Y., has leased a paperboard mill and other real property at Garwood, N. J., from the Sonoco Products Co., of Hartsville, S. C. Full control will be assumed by National Gypsum on January 1, for production of paperboard.

This is the second such mill obtained by National Gypsum, the other being located in Newburgh, N. Y.

Panelyte Division Enlarges Facilities

An expansion program costing \$2,000,000, has been started at the Trenton, N. J., plant of the St. Regis Paper Co.'s Panelyte Division.

To meet demand for an increased volume of Panelyte pulp molded parts used by the refrigerator industry, Panelyte is erecting a new steam boiler plant and is constructing new buildings to house enlarged treating, varnish making, pressing, molding and shipping departments.

The Panelyte Division has added more than 60,000 square feet of floor space and new equipment to mass-produce functional insulating parts for the automotive, refrigerator, radio and electrical industries.



L. E. FITZGERALD, who has been named resident Manager of Hercules Powder Co., 5228 North Hopkins St., Milwaukee, Wis. His staff will be augmented to handle business in Wisconsin, Minnesota, and the northern peninsula of Michigan.

MONSANTO PLASTICIZERS MAKE GOOD PRODUCTS BETTER

Monsanto, with a complete line of plasticizers, is aiding many manufacturers improve old products and develop new ones. And Monsanto's never-ending research is constantly developing plasticizers for special requirements and discovering new uses for others that have a more general application.

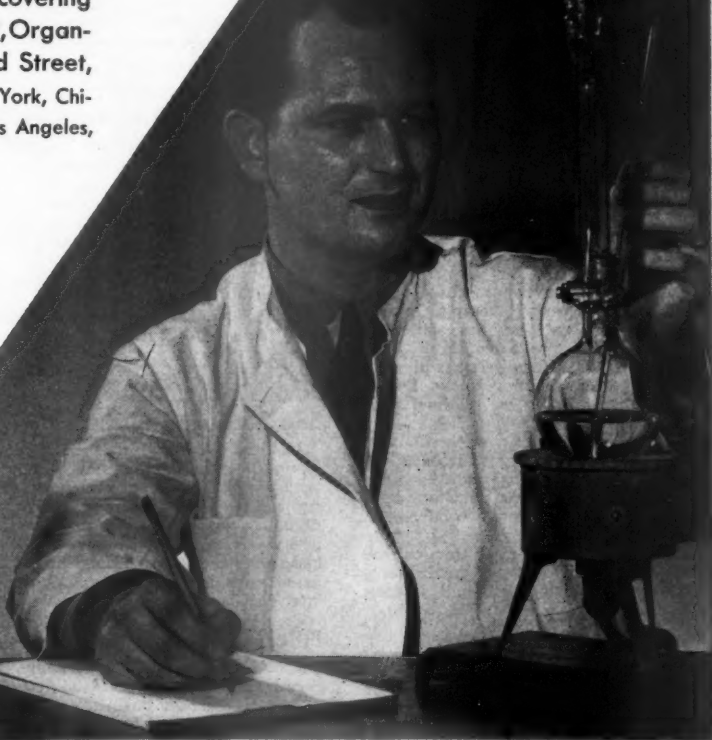
Monsanto plasticizers, like all Monsanto products, are manufactured with the precision and "know-how" born of years of experience. Highest quality is *always* assured.

If you have need for plasticizers, chances are we can fill your requirements to your entire satisfaction. And we shall be happy to assist you in making your old products better and discovering new ones. MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Missouri. District Offices: New York, Chicago, Boston, Detroit, Charlotte, Birmingham, Los Angeles, San Francisco, Seattle, Montreal, Toronto.



MONSANTO
CHEMICALS

SERVING INDUSTRY... WHICH SERVES MANKIND



John W. Fuchs Leaves U. S. State Dept.

John W. Fuchs, who was in charge of pulp and paper and coal exports for the U. S. State Department during the war, and thereby exerted important controls over all other departments of government in their conduct of foreign trade in these commodities, has resigned that position. He returns to American Express Co. as a trade specialist.

Mr. Fuchs, who became well known in paper industry circles as an advocate of secrecy in the handling of foreign trade matters, because of the stress he placed upon this trade as a weapon of war, has issued an interview to the press through a New York publicity agency. In it, Mr. Fuchs claims that newsprint shipped from North America gave Latin America its "principal psychological weapon in fighting the Axis."

C-Z Service Pin Presentation

Portland, Oregon, office, Crown Zellerbach Corp., honored eight of its employees through a service pin presentation banquet at Hotel Benson, October 18. More than 100 people were present for the supper and program, presided over by W. D. Welsh, San Francisco, and featuring "Welcoming Remarks" by F. N. Youngman, Vice President, Portland; "A Word for Other Places," F. A. Drumb, Industrial & Public Relations Director, San Francisco; "Lost Chapters in American History," Stewart Holbrook, Portland writer.

Pins were presented by R. A. McDonald, Executive Vice President, San Francisco, to:

Miles Murray, 15 years of service; Anita L. McElvain, 10 years of service, and Axel J. F. Brandstorm, Theodore Olson, Frederick Pontin, Donald S. Smurthwaite, Robert A. Swanson, E. L. Vose, 5 years of service.

Paper School Opens

Crown Willamette Paper school opened officially on Tuesday evening, October 16, for its thirteenth annual course of instruction which will continue until early March, 1946. Enrollment, while not yet completed, is holding above 1944-45 figures, but has not yet attained pre-war proportions.

Each class meets once a week, the first and second year classes on Tuesdays and Wednesdays respectively, and the third and fourth year classes on Thursday.

Only slight changes have occurred in the instructional staff.

This course is accredited for college credit with two educational institutions; University of Washington, and Oregon State College.

Haner Gets Limit

Victor Haner, acting plant engineer of the Puget Sound Pulp & Timber Co., took a couple of days off from his work on the new barking and chipping plant being built by the company, to go over to the Okanagon country for a bird hunting trip. He brought back the limit.

Erickson Recuperating

A. E. Erickson, chief chemist in the control laboratory of the Pulp Division, Weyerhaeuser Timber Co., Longview, Wash., is recuperating from an operation performed the latter part of September.



H. D. SMITH, who has been appointed General Sales Manager of R. M. Wade & Co., pioneer equipment distributing firm of Pacific Northwest, according to announcement by Wade Newbegin, President. Mr. Smith has been with the company ten years. He was former Sales Manager of the Pump Division and finally Manager of that division in Portland. Orville Moore is the new Sales Manager of the Industrial Pump Division and Electric Motors Division. The company is dealer for Gould stock pumps.

Famous Australian Visits North American Mills

Sir Norman Brookes, who is now chairman of the Australian Paper Manufacturers' Assn., and who once was a world champion tennis player and helped Australia win Davis Cup honors 25-35 years ago, was recently on a tour of North American pulp and paper mills.

Lady Brookes, who commanded Australia's WACs, was with him. Among mills they visited were the Weyerhaeuser and Longview Fibre Co. mills in the west.

Jack Wilcox Visits Southern and Eastern Mills

Jack M. Wilcox, engineering department, Electric Steel Foundry Co., Portland, Ore., is making a lengthy trip to many of the outstanding pulp and paper mills of South and East Coast of the United States. From the Midwest, he had traveled South to Louisiana and Alabama mills in early November and was later in Georgia.

Flood Goes East

E. E. Flood, president of Pacific Paper Board Co., Longview, Wash., left October 20, on eastern business. He will not return to his office until about December 1.

Baseball Champions

The Bellingham City Baseball League Champions from Puget Sound Pulp went into Canada to play Fraser Valley champs, and came out on the long end of a three game series, taking two out of three. Manager Ed Scribner says he hates to tell the boys to put their uniforms away as they have beaten all teams in their class close to Bellingham.

St. Regis To Operate Maine Seaboard Inc.

Maine Seaboard Paper Co., with a mill at Bucksport, Me., which has been making newsprint and will shift to book stock when news contracts expire, has been sold to Time-Life-Fortune Magazines.

The Luce interests are reported to have paid \$4,300,000 cash and assumed the paper company's debt of \$1,700,000 from the First Boston Corp.

Keyes Fiber Co., another property acquired by the bankers, is reported to have been sold for \$1,300,000 cash to Coffin & Burr, Boston investment concern. Both transactions are subject to approval by the Securities and Exchange Commission which opened hearings on the subject.

St. Regis Paper Company has entered into a contract with Time, Inc., for a period of years to operate and manage the Maine Seaboard Paper Company, Roy K. Ferguson, president of St. Regis, told the New York office of PULP & PAPER INDUSTRY as we go to press. The big publishing concern acquired the mill recently from a banking group at an undisclosed figure. Major expenditures will be involved in converting the plant from newsprint to magazine paper for Time and Life. An authoritative source states also that St. Regis has acquired the Watab Paper Company, Sartell, Minn., and further details will be carried in the next issue.

Organization and personnel of Maine Seaboard will remain intact, Mr. Ferguson said, with St. Regis operating the property as if it were a division of its own. St. Regis will supervise the engineering of the plant's conversion, retaining an engineering concern for this purpose.

Turcotte Heads Chest Drive

Mr. Lawson Turcotte, executive vice-president of the Puget Sound Pulp and Timber Company headed the 1945 Community Chest Drive for the City of Bellingham. In addition to serving on the Chest Drive, he heads the financial committee for the Bellingham Chamber of Commerce drive to raise funds for advertising Bellingham advantages to the nation.

Regional Meeting

Dr. D. L. Shinn, J. W. Wenger and Wm. R. Barber of Crown Zellerbach staff, Camas, Wash., attended the regional meeting of the American Chemical Society on University of Washington Campus, October 20th.

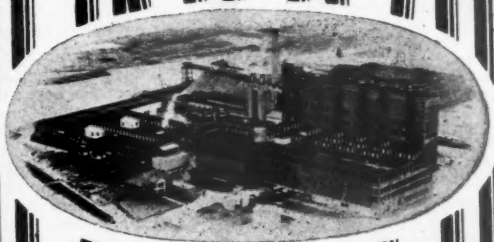
Dr. Shinn presented his paper, printed elsewhere in this magazine, on "Some Experiments in Electrolysis of Waste Sulphite Liquor" at the Industrial Engineering Section meeting of the Society.

Tree Farms Enlarged

Columbia County, Oregon, Tree Farms, established by Crown Zellerbach Corp. on lands formerly owned by Clark & Wilson Lumber Co., Portland, have been increased by the purchase of 8,000 acres. This increased the holding to some 55,000 acres in the area.

Meanwhile, E. P. Stamm, logging superintendent for C-Z, states that the company, despite manpower shortages, has built between 50 and 60 miles of fire trails, mainly through conversion of railroad grades remaining from lumber operations of the former owners, to secure more intensive fire protection.

SOUNDVIEW



High Grade

**BLEACHED
SULPHITE PULP**

SOUNDVIEW PULP COMPANY
EVERETT • WASHINGTON



CURTISS-WRIGHT CORPORATION
AIRPLANE DIVISION-BUFFALO PLANTS
BUFFALO, N.Y.

September 12, 1945

Buell Engineering Co., Inc.
70 Pine Street
New York 5, New York

Gentlemen:

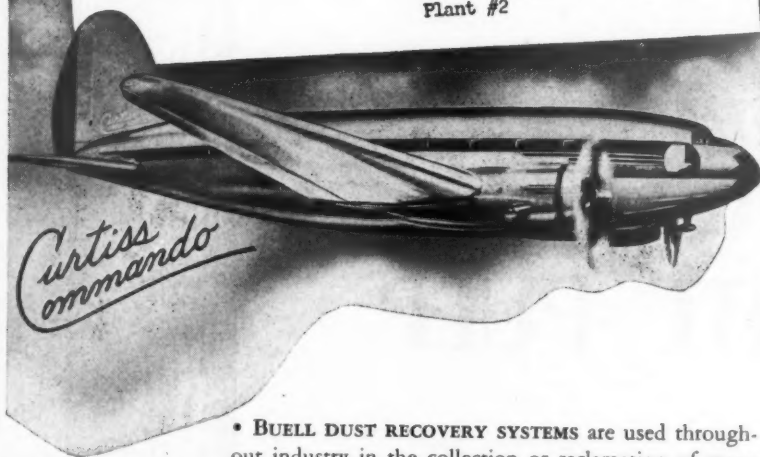
It is a pleasure to answer the recent inquiry from your Engineering Department checking upon the mechanical operation of the Buell Dust Recovery Systems installed in our three plants.

Buell Fly Ash Collectors have been in service on twelve (12) boilers since 1941, operating continuously.

Since the time of their installation, they have cost us nothing for maintenance or repair. Their collection efficiency has fully met our requirements, and they have accomplished in a highly satisfactory manner the job for which they were installed.

Yours very truly

Guy Maher
Guy Maher, Plant Engineer
CURTISS-WRIGHT CORPORATION
Plant #2



• **BUELL DUST RECOVERY SYSTEMS** are used throughout industry in the collection or reclamation of many kinds of dust, in numerous production and process operations. Hundreds of satisfied industrial users will attest to Buell's—"High Efficiency, Low Maintenance, Long Life."

Write for Buell's new, revised book "The Buell (van Tongeren) System of Industrial Dust Recovery" now in its fourth printing.

BUELL ENGINEERING COMPANY, INC.
70 Pine Street, New York 5, N. Y.
Sales Representatives in Principal Cities

DESIGNED TO DO A JOB, NOT JUST TO MEET A "SPEC"

**Marriott is Tech. Supvr.
At Port Townsend**

Robert Marriott has been appointed technical supervisor of the Crown Zellerbach kraft mill at Port Townsend, Wash. He replaces Clarence L. Bunge, who resigned to pursue his ambition of becoming a doctor and has entered Oregon State College, preparatory to entering later the University of Oregon medical school.

**Cliff Larson Returns
To Staff of M&O**

Cliff Larson, administrative warrant officer in the U. S. Army's Japanese language school at Fort Snelling, Minn., has returned to the Minnesota & Ontario Paper Co., after three years in the service.

Cliff, brother of Clarence Larson, general manager of M&O mills, will be active in new products and production work in the company's Insulite Division at International Falls.

Barber Attends Meeting

William R. Barber, technical director, Central Technical Laboratory, Crown Zellerbach Corp., Camas, Wash., attended an Executive Committee meeting of National TAPPI on November 1st and 2nd in Appleton, Wis. He represents the Pacific Coast section on the National Executive Committee.

Mr. Barber was joined by Dr. W. F. Holzer at the Institute of Paper Chemistry to review certain projects at that institution.

Dave Brittain Returns

David Brittain, sales representative in Chicago for the Mead Sales Co., returned in mid-October after serving in the U. S. infantry in France, Belgium and Germany.

Dave got across after two operations for hernia and he served on the front in the famous Battle of the Bulge.

He was formerly employed in west coast pulp mills.

Layton Returns

Lt. Comdr. A. B. Layton, USNR, is back at his desk at San Francisco headquarters of the Crown Zellerbach Corp., as vice-president with duties having to do with operations, sales, and financial matters.

Mr. Layton was connected with naval ordnance, and was executive officer at the great Port Chicago Naval magazine on San Francisco Bay. He was in the service three and a half years.

New Son for Alter

First Lt. Irving Alter, USA, nephew of Marcus Alter, head of the Commercial Paper Co., San Francisco, is now the father of a new son. Lt. Alter and Mrs. Alter are stationed in North Carolina. Before donning khaki he was with the Commercial Paper Co.

Colliers Take Fishing Trip

Sidney Collier, assistant superintendent of the Puget Sound Pulp, and family, spent a couple weeks of fishing on Vancouver Island recently, and reports the fishing was of the very finest. Not only did Mrs. Collier catch a few fish, but four-year old Eddie now has three to his credit. The quiet waters of Mill Bay were much cut up with Sid's outboard.

Visitors to Sweden

To ease the export situation, there has been some slight tightening of newsprint in Sweden since the end of the war, says a recent visitor to Sweden, Denmark and Norway who stopped at the New York office of PULP & PAPER INDUSTRY on his way to his home on the West Coast.

On the whole, however, newspapers have kept to sizes comparable with those in the U. S. Shipments of both pulp and paper to the continent are increasing, our informant states, but the northern countries are still hampered greatly by lack of chemicals and the still drastic lack of coal. Some pulpwood is being defected for use as fuel. It is not an uncommon sight to see barked pulpwood stacked for fuel use.

Another recent visitor to Sweden, a native of that country, verifies recent reports that Germany was unable to make as much progress on wood utilization as had been rumored here. It was the practice for groups of mills to engage in a number of experiments, assigning specific projects to specific mills. If the project was successful it was available to all mills in the group. If unsuccessful, all mills in the group contributed to the cost.

September Newsprint

Newsprint production in Canada during September, 1945, amounted to 269,963 tons and shipments to 277,018 tons, according to the News Print Service Bureau. Production in the U. S. was 56,722 tons and shipments were 59,802 tons. The output in Newfoundland was 27,861 tons and shipments were 21,105 tons making a total North American production of 354,546 tons and shipments of 357,925 tons. Total production in Sept., 1944, was 331,214 tons and shipments were 345,124 tons. There was one working day less in Sept., 1945, than in Sept. last year.

The Canadian mills produced 140,395 tons more in the first nine months of 1945 than in the first nine months of 1944, which was an increase of 6.3%. The output in the U. S. was 3,923 tons or 0.7% more than in the first nine months of 1944; in Newfoundland production was 46,018 tons or 23.1% more, making a total increase of 190,336 tons, or 6.4% more than in the first nine months of 1944.

Stocks of news print paper at the end of Sept. were 62,156 tons at Canadian mills, 4,746 tons at U. S. mills, and 50,923 tons at Newfoundland mills, making a combined total of 117,825 tons compared with 121,204 tons on Aug. 31, 1945, and 103,788 tons at the end of Sept., 1944.

Mrs. McCormick Dies

Friends of W. J. McCormick, San Francisco, Pacific Coast representative of the American Writing Paper Co., were offering him their sympathy on the death of his mother, Mrs. Mary McCormick, 80, who passed away in Oakland, Sept. 22. Mrs. McCormick leaves a daughter, also. She was born in Rock Island, Ill., and came to California in 1920 from West Springfield, Mass.

New Grandson

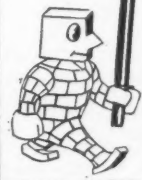
L. J. Doherty, Sacramento division manager, Zellerbach Paper Co., is mighty proud of that new grandson of his, Robert Leland Doherty, Jr., born Sept. 10. The infant's dad was in the Army in Australia, and his mother, an Australian girl, now lives with her husband in this country where the baby was born.

"All tile linings and tile tanks required for the stock handling system and bleach plant were STEBBINS"

The various items are as follows:

- Thirteen hollow tile tanks.
- Two brown stock chest linings.
- One chlorinator lining.
- One acid treatment tank lining.
- Two low density tower linings.
- Three high density tower linings.
- Three dump chest linings.
- Four pulp storage tank linings.
- Six tile washer vats.
- The four Pulp storage tanks were very large size, 30' inside diameter by 40' inside height.

Paper Mill News



Sixty-one years of specialization in solving lining and tank problems for the paper industry.

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TEXTILE TOWER

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Reds Get All Finnish Newsprint Until July 1

Russia will get practically all the newsprint Finland is able to produce until next July 1 but after that date Finland wants to do business with the United States, according to U. S. officials.

Meanwhile, American newspapers are receiving slightly more paper during the final quarter of this year. The chief reason is because North American mills will be relieved of shipping some 40,000 tons of newsprint abroad between now and next July.

A new outlook on the newsprint situation was reported by the U. S. newsprint mission which visited Europe during July and August.

The mission's report indicated also that:

Norway will have an exportable surplus of 25,000 to 40,000 tons of newsprint by next July, mainly for liberated European countries.

Sweden will export 95,000 metric tons in 1945, all of which is going to countries other than the United States.

Eastern Trip

Roger Hopkins, sales manager, Pacific Coast Paper Co., San Francisco, made an eastern trip recently, visiting the main office of the company in Chicago, and various mid-western paper mills.

Dewey Rigg Leaves Longview

Dewey Rigg, formerly chief maintenance engineer for Longview Fibre Co., Longview, Wash., is now chief engineer for Olympia Brewing Co., Olympia, Wash.

Norwood Paper Mill Supt.

Irving T. Rau, secretary and treasurer of St. Helens Pulp & Paper Co., St. Helens, Ore., has announced the move of Merrill Norwood to the position of paper mill superintendent, filling the place left vacant by the resignation of F. Monahan.

Norwood was formerly night paper mill superintendent with this company and had previously been employed by the Columbia River Paper Mill.

New Men At Bonestell

James A. Williams is the new sales manager of Bonestell & Co., San Francisco paper wholesalers.

Mr. Williams brings a background of 31 years in the paper business to his new job, having started in 1914 with the Dwight Bros. Paper Co., Chicago, Ill. Just before making his connection with Bonestell, he was with Moser & Co., Chicago paper merchants.

Another new Bonestell appointment is that of T. E. Prince, credit manager and comptroller. Mr. Prince was formerly in the steamship business.

Cochran Opens Offices

Another San Francisco paper man to lay down the sword and pick up his sample case is Major Andrew Cochran, paper mill representative who has been mustered out of the service, and has opened offices at 268 Market St., phone DOuglas 8549.

Paul Dixon Dies

Paul J. Dixon, founder of the well known Salt Lake City paper house of Dixon & Co., died in that city recently.

Positions Wanted by Veterans of World War II

"And so, my fellow countrymen, I report to you that your sons and daughters have served you well and faithfully... They are homeward bound... Take care of them."—General Douglas MacArthur.

PULP & PAPER INDUSTRY offers to publish in these columns — without charge — the "classified advertisements" of bona fide ex-service men and women who have served in any of the armed services of the United States and Canada. We do this in no sense as a repayment for what they have done for us — but merely as a small

courtesy which we hope will be of assistance both to them and to the pulp and paper mills of North America. We will welcome the inquiries of these "veterans" for executive, supervisory, technical or engineering positions. Their names and addresses will be confidential. We offer to write their "ads" for them on the basis of their letters.

WANTED: Position as chem. engineer. Desires Pacific Coast connection. Grad. U. of Mich. Seven yrs. with heavy chemical manuf. in engineering, research, production; two years supvr. in a manganese plant; one year cellulose products. Box B.

WANTED: Position in industrial engineering, purchasing, production control or planning. Discharge from army air corps imminent. Rag-weed allergy requires move from midwest; favors Pacific Coast opportunity. Experience: five years in aircraft industry, operated mercantile business, purchasing agent, production supvr. Box A.

WANTED: Sales position on Pacific Coast. Just returned from 2 years as Seabees officer in Pacific War Theater. Previously was sales executive for prominent Wisconsin and South pulp and paper companies; many years' experience meeting converters and distributors. Reply Box C.

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Hammermill Convention

Victor E. Hecht, vice-president, Zellerbach Paper Company, San Francisco, attended the Hammermill Paper Co. convention at Erie, Pa., and from there went on to the Simplification Committee meeting of the NPTA at Chicago.

Also attending the Hammermill convention from the west coast were B. P. "Doc" Jaggard, Pacific Coast representative of the company; and J. F. Wuen-schel, Pacific Coast sales manager, with headquarters at Grays Harbor, who passed through San Francisco en route to the affair.

Pacific Coast Visitor

R. C. Wilke, an executive of the Leader Card Works, Milwaukee, Wis., was a recent visitor to the trade on the Coast.

Cochran Opens Offices

Major Andrew Cochran, recently discharged from the Army, has opened paper brokerage offices in San Francisco at 268 Market St., Room 238, and has resumed the lines he represented before he went to war.

Hecht Home From East

V. E. Hecht, vice-president, Zellerbach Paper Co., San Francisco, is back at his desk after attending the NPTA meeting in Chicago. Mr. Hecht also visited New York, and New England.

Swanson Joins Foxboro

The Foxboro Co., Foxboro, Mass., maker of industrial instruments for measurement and control, announces that Mr. Nels A. Swanson has joined the company as a sales engineer, attached to the branch office at 2307 E. 8th St., Los Angeles 21.

Mr. Swanson is widely acquainted in California and the Southwestern States, where he has held various important positions in industrial and municipal engineering. Before joining The Foxboro Co. he was Electrical and Instrument Engineer for the Goodyear Synthetic Rubber Corp., at Torrance, Calif., and also supervised much of the instrumentation of that company's plant at Houston, Tex. His background includes extensive experience in the field of electronics, as well as with the older and more familiar principles employed in industrial instrumentation.

Dr. Wellman Joins Calco

The Calco Chemical Division, American Cyanamid Company, Bound Brook, New Jersey, announces that Dr. Victor E. Wellman will join the staff of its Development Department, on January 1, 1946. In addition to his development work, Dr. Wellman will serve as Technical Advisor to the Sales Department on matters relating to Intermediates and Chemicals. He is presently connected with R. W. Greeff & Company, Inc., New York, and was for 15 years with the B. F. Goodrich Company, Akron, Ohio.

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**PUGET SOUND
POWER & LIGHT COMPANY**

Technical Director

F. G. Long was appointed technical director for Pacific Paperboard Co., Longview, Wash., on Sept. 1st. He was formerly chief chemist for Fir-Tex Insulating Board Co., St. Helens, Ore.

Longfibre Kraftsmen Meet

The Longfibre Kraftsmen of Longview Fibre Co., Longview, Wash., resumed monthly dinner meetings at the Longview Country Club, October 3rd, after a lay-off during the summer months.

This group is an organization of management, superintendents and department heads of the Longview Fibre Co. and has for its purpose the dissemination of facts concerning the company and its operation.

The program consisted of discussions of the paper order department by Tom Mendenhall, fourdrinier and cylinder machines by Bill Clarke, the company's accident and safety record by A. P. Siebers.

Plans for putting the company's returning service men back to work was discussed by Boyd Wickwire.

Arnold Brandis showed films of climbing Mt. Olympus and other outdoor pictures taken during a trip to the Olympic Peninsula.

Pilz Visits In California

William J. Pilz, president, Everett Pulp & Paper Co., was a San Francisco and Los Angeles visitor last month.

Hawley Head Elected

John H. Smith, president of Hawley Pulp & Paper Co., has been elected to the board of directors of the American Mail Line.



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